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ABSTRACT

This study describes the segmental phonemes of five 4-year-old speakers of Black English, and analyzes both their language development and ethnic characteristics. The study group of Negro children, born and living in Washington, D.C., came from homes that met two of three specified criteria based on the mother's education and family income. The interviews were tape-recorded within a 6-month period after each child had reached his fourth birthday. During the interview, language data was elicited by structuring the 30-45 minute sessions into four productive parts. The results demonstrated that the phonemic system of these children was distinctive. While almost all phonemes were dominated by the conventional Standard English allophones, the presence of unconventional allophones was so pervasive as to effect a markedly nonstandard English dialect, which included both childish and Southern characteristics, as well as others whose identity was not so easily established. The childish patterns included marked instability in the consonant allophones and the presence of "babytalk" patterns. Two of the four Southern patterns were: (1) Southern allophones in the vowel phoneme, and (2) the marked weakening of the phoneme /r/in the final position. The other patterns included pervasive consonant omission in final and medical positions. (Author/LG)

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A PHONOLOGICAL ANALYSIS OF THE LANGUAGE OF FIVE BLACK PRE - SCHOOL CHILDREN OF LOW SOCIO-ECONOMIC STATUS IN WASHINGTON, D.C.

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PART I

PHONEMIC ANALYSIS SUMMARIZED

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INTRODUCTION

This study was conceived as a phonemic analysis of the language of five four-year-old speakers of Black English, with emphasis on the ethnicity rather than the age factor. The pervasiveness of the immaturity characteristics was such as to require their analysis in depth if the BE features were even to be perceived. The study, then, comprises a description of the segmental phonemes of these children, and an analysis in terms of both language development and ethnic characteristics. The terms Black English (BE) and Non-standard Negro English (NNE) are used interchangeably throughout this study to refer to the linguistic system of working-class Negroes in the United States.

The study group consisted of five four-year-old Negro boys, born and living in Washington, D.C. The children came from homes that met two of the following three criteria: (1) the mother's formal education was less than 12 years; (2) the mother's work history was of unskilled or semi-skilled employment; (3) the family income, at the time the study was initiated, was $5,000.00 annually, or less. All lived in deteriorated areas of Washington, D.C. All the children had been tested and judged to be of normal intelligence. Medical examinations had revealed them to be without serious sensory or neurological problems.

The Interviews. Interviews with the children were conducted by technicians attached to the Infant Education Research Project, Catholic University of America, who held their position by virtue of their demonstrated rapport with the children. The interviewers were young women, themselves black, with whom the children had had limited previous contact,

inasmuch as these children had served as members of a control group in a related study.

Interviews with the children were conducted and tape-recorded within a six month period after the child reached his fourth birthday, during the spring and summer of 1969. The purpose of the interviews was to elicit as much language data as possible. To achieve this end, the interview was structured in four parts. Every effort was made to use materials well within a four-year-old's frame of reference and meaningful within the black community. Parts I and II aimed at eliciting as much free continuous speech as possible. In Part I, the interviewer "read" the child a four-picture Peanuts cartoon, and then asked the child to tell the story back. In Part II, the interviewer asked the child to "tell about" a situation in response to a series of action pictures. Part III attempted to elicit the complete spectrum of phonemes of Standard English*(SE), as spoken in the United States, by asking the child to identify pictures covering all vowels, diphthongs, and consonants. Part IV of the session aimed at picking up any additional comment or free conversation which the child might volunteer at the end of the interview. The sessions lasted approximately 30-45 minutes, depending on the relative volubility or reticence of the child. Supplementary data were obtained from psychological tests given the children during the same time period, and tape-recorded for the purposes of the language study. All recording was done on a Wollensak Model 1500 SS at the speed of 7 1/2 ips.

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* For the purposes of this study, Standard English is defined, following Wolfram, as "... a socially acceptable variety of English established by a codified norm of "correctness." " See Walter A. Wolfram, A Sociolinguistic Description of Detroit Negro Speech (Washington, D.C.: Center for Applied Linguistics, 1969), p. 17.

Linguistic Analysis. The children's phonemes were examined in the framework of Standard English without any implication that SE is superior or that the children's language is inferior, but only for the purpose of throwing into relief the content of the children's language. The analysis is done in broad IPA transcription; refined variations such as aspiration, glottalization, retroflex formation, etc., are usually not indicated.

The vowel phonemes are symbolized as follows: /i/, eat; /ɪ/, it; /ɛ/, bet; /æ/, bat; /a/, father; /ɔ/, law; /u/, look; /u/, do; /ə/, custom; /ɜ/, heard. The diphthongs: /aɪ/ fight; /aʊ/, out; /ɔɪ/, boy; /ju/, you; /e/ day; /o/, boat. The consonants: /p/, pet/ /b/, bet; /t/, tent; /d/, dent; /k/, kept; /g/ get; /f/, fat; /v/ vat; /θ/, ether; /ð/ either; /s/, ice; /z/, eyes; /ʃ/, pressure; /ʒ/, pleasure; /h/, head; /tʃ/, church; /dʒ/, judge; /m/, moon; /n/, noon; /ŋ/, sing; /l/, lull; /w/, woo; /j/, you; /r/, rue. The enclosure of a phone in brackets [] indicates that it is the accepted symbol for a particular phone in the International Phonetic Alphabet. The enclosure of a symbol in diagonals / / indicates that it is the symbol of a phoneme in the study dialect. The symbol [ʔ] is used to represent the glottal stop. Aspiration, when it is indicated, is symbolized by placing the symbol after the phone, e.g., [t'] , and lack of release is symbolized by an asterisk, e.g., [t*]. The 'voiced' t is represented by the symbol [t̬]. Stress is symbolized by placing the "apostrophe" before the syllable, e.g., Mary ['mɛri]. Length is indicated by placing the following symbols after a phone [o, o:, o::] , indicating three degrees. The letters IPA represent the International Phonetic Alphabet; SE, Standard English; BE, Black English; NNE, Non-standard Negro English.

Quantification was attempted in this study by counting the words in which a particular phoneme was heard, and by identifying within that phoneme, the frequency of the several allophones. Frequency is indicated on the tables (See Tables 1 - 6) in the following categories: Universal, no other allophone heard; Dominant, heard in more words containing this phoneme than any other allophone; Frequent, heard in at least half the words containing the phoneme; Occasional, heard in fewer than half the words containing the phoneme; Rare, heard only once or twice. When the phrase "used by ___ children" is used, the occurrence of the phoneme in the particular position was too infrequent to permit a count. No attempt was made to list every word heard in the phoneme descriptions; the word listings are numerous enough to illustrate all the allophone usages heard.

Summary of Phonemic Analysis

The phoneme system of these children was distinctive. While almost all phonemes were dominated by the conventional SE allophones, the presence of unconventional allophones was so pervasive as to effect a markedly non-SE dialect. This dialect included both childish and Southern characteristics, as well as others whose identity was not so easily established. The childish patterns included: (1) the marked instability of consonant allophones (See Table 2); and (2) the widespread presence of specific "baby-talk" patterns (See Tables 3, 4, 5). Southern patterns included: (1) a spectrum of Southern allophones in the vowel phonemes, usually in rare usage (See Table 1); (2) the occasional Southern allophone [a.] in the diphthong phoneme /aɪ/, and the frequent Southern allophone [æʊ] in the diphthong phoneme /aʊ/ (See Table 1); (3) the marked weakening of the phoneme /r/ in final position (See Table 5); and (4) the dominant usages [ɪn] and/or [ən] for the participial ending ing [ɪŋ] . Among those patterns whose identity is more difficult to establish, inasmuch as analyses of both childish speech and Black English claim them, are: (1) the dominant stop consonant allophone [d] in the fricative phoneme /ð/ in initial position; (2) the dominant fricative allophone [f] in the fricative phoneme /θ/ in medial and final position; (3) pervasive consonant omission patterns, including the stop consonants /t/ and /d/, fricatives /s, v/, the sonorants /m/, /n/, and /l/, all in final position and some also in medial position. (See Table 6).

TABLE I

SOUTHERN CHARACTERISTICS
VOWELS AND DIPHTHONGS

Southern Allophones in Vowel Phonemes	Frequency[1]
[æ] in /ɪ/, e.g., finger ['fæŋgə]	Rare; this word only
[ʌ] in /ɪ/, e.g., whip [wʌp]	Rare; this word only
[eɪ] in /ɛ/, e.g., bread ['breɪːə]	Occasional
[ɔ] in /ɛ/, e.g., penny ['pɔni]	Rare; this word only
[eɪ] in /æ/, e.g., can't [keɪnt]	Rare; this word only
[oʊ] in /ɔ/, e.g., dog [doʊg]	Occasional
[ʌ] in /ʊ/, e.g., woman ['wʌmən]	Rare; this word only
[ɛ] in /ə/, e.g., just [dʒɛs]	Rare
[æ] in /ə/, e.g., ambulance ['æm bju'l$\widetilde{æ}$ːs]	Rare; this word only[2]
[oʊ] in /ə/, e.g., police ['poʊ'lis]	Rare; this word only[2]

Southern Allophones in Diphthong Phonemes	
[ɑɪ] in /aɪ/, e.g., five [fɑɪːv]	Occasional
[æ] in /aɪ/, e.g., wine [wæːn]	Rare; this word only
[æʊ] in /aʊ/, e.g., cow [kæʊ]	Frequent

---

[1] In describing frequency, the following terms are used: Universal - no other allophone heard; Dominant - heard in more words containing this phoneme than any other allophone; Frequent - heard in at least half the words containing the phoneme; Occasional - heard in fewer than half the words containing the phoneme; Rare - heard only once or twice.

[2] In the words ambulance and police, not only does the allophone differ from SE, but the stress pattern is noticeably different.

TABLE 2

CHARACTERISTIC PATTERNS OF IMMATURE SPEECH
THE PROLIFERATION OF CONSONANT ALLOPHONES

Stops

[b] in /p/, e.g., spaghetti [bə'gɛti]
[g, p] in /b/, e.g., baby ['beigi], caboose [pu:]
[tʃ, k, p, s] in /t/, e.g., teeth [tʃiʃ], right [raik], tree [pri, sri]
[t] in /k/, e.g., can't [t'æ̃:]
[d, dʒ, k, t] in /g/, e.g., girl [dɜ:, dʒɜ:l], wiggle ['wikəl], wagon ['wɛtə̃]

Fricatives

[p] in /f/, e.g., fire ['pa:ə]
[k, w] in /v/, e.g., seven ['tʃɛkin], every ['ɛ:wi]
[d, v, j] in /ð/, e.g., this [dis], mother ['mʌvə], thats [jæ:s]
[f, t, tʃ, p] in /θ/, e.g., bath [bæf], three [tri], thirsty [tʃɜ:ti], something ['sʌ̃mpən]
[θ, ʃ, tʃ] in /s/, e.g., soda [θoudə], scissors [ʃi:ʒə], seven [tʃɛkin]
[θ, ʒ] in /z/, e.g., scissors [si:ʒə], his [hiθ]
[s] in /ʃ/, e.g., shoes [su:]
[d] in /h/, e.g., here [di:ə]

Affricates

[ʃ, tr] in /tʃ/, e.g., Charley ['ʃa:rli], choo [tri]
[ʒ, z, dz, t] in /dʒ/, e.g., engine ['i:ʒə̃], jump [zʌmp], juice [dzu:], January ['t'æ̃njuɛri]

Sonorants

[n, p] in /m/, e.g., corbing ['kounə], tummy ['tʌ̃pi]
[w, j, d] in /l/, e.g., black [bwæk], lady ['je:di], look [duk]

Glides

[v, b] in /w/, e.g., watch [va:], flower ['fwa:bə]
[w, z] in /r/, e.g., ran [wæ̃:], Gregory ['dzɛkəri]

TABLE 3

CHARACTERISTIC PATTERNS OF IMMATURE SPEECH
CONSONANT ALLOPHONE PATTERNS POPULARLY IDENTIFIED AS "BABY-TALK"

Allophone Patterns	Position	Frequency[1]
Stops		
[t] in /k/, e.g., can't [tʰæ̃ːnt], comb [tʰoʊm]	Usually initial ;	Dominant in 1 child; rare in 2nd;
[d] in /g/, e.g., girl [dɜːl], going [ˈdoʊɪn]	Always initial ;	Dominant in 1 child; occasional in 2nd ;
Fricatives		
[v] in /ð/, e.g., mother [ˈmʌvə], brother [ˈbrʌvə]	Always medial;	Used by 3 children;
[θ] in /s/, e.g., soda [ˈθoʊdə], say [θ eɪ]	Usually initial;	Dominated usage of 3 children in initial position ;
[ð] in /z/, e.g., his [h ɪ θ]	Medial and final ;	Used by 2 children;
[s] in /ʃ/, e.g., shoes [ʃuːz]	Initial and final;	Used by 4 children;
Sonorants		
[j] in /l/, e.g., lady [ˈjeɪdi]	Initial only;	Frequent
[w] in /l/, e.g., black [bw æk]	Initial consonant cluster only;	Frequent
Glides		
[w] in /r/, e.g., read [wid], run [wʌn]	Initial;	Dominant
e.g., breakfast [ˈbwɛkfəs]	Initial consonant cluster;	Frequent;
e.g., Larry [ˈlʔwi]	Intervocallic;	Occas.--2 children;

[1] In describing frequency, the following terms are used: Universal - no other allophone heard; Dominant - heard in more words containing this phoneme than any other allophone; Frequent - heard in at least half the words containing the phoneme; Occasional - heard in fewer than half the words containing the phoneme, but oftener than "Rare"; Rare - heard only once or twice. In this table, the phrase "used by ___ children", without an adjective indicating frequency, means that the occurrence of the phoneme in that particular position was too infrequent to permit an estimate.

TABLE 4

CHARACTERISTIC PATTERNS OF IMMATURE SPEECH
MISCELLANEOUS

Pattern	Frequency [1]
(1) [tʃ] as a consonant allophone	Rare in any single phoneme or as a substitute for a particular cluster;
- in consonant phonemes, e.g., in /t/, teeth [tʃi:]; in /k/, key [tʃi]; in /s/, seven ['tʃɛkɪ]; in /θ/, thirsty ['tʃɜ :tɪ]	
- as a substitute for consonant clusters, e.g., for tr, truck [tʃʌk]; for kl, clock [tʃɑk]; for sk, skate [tʃeɪt]	
(2) Omission of /s/ and /l/ in initial consonant clusters	
/s/, e.g., sk, skate ['k'eɪt]; sm, smoke [mouk]; sn, Snoopy ['nupi]; sp, Spoon [p'un]; st, stick [t',k]; str, straight [reɪt]	Dominant
/l/, e.g., bl, block [bɑk]; fl, flag [fæg]; pl, plane [peɪn]; sl, sleep [sip]	Occasional
(3) Tendency toward simplification of the affricates.	
- the inclusion of the allophone [ʃ] in /tʃ/, e.g., Charley ['ʃɑ:lɪ], kitchen ['kɪʃən], watch [wɑʃ]	Frequent
- the inclusion of the allophones [ʒ, dz, z] in /dʒ/, e.g., engine [ẽ:ʒəɪ], juice [dzus], jump [zʌmp]	Used by 3 children

[1] In describing frequency, the following terms are used: Universal - no other allophone heard; Dominant - heard in more words containing this phoneme than any other allophone; Frequent - heard in at least half the words containing the phoneme; Occasional - heard in fewer than half the words containing the phoneme, but oftener than "Rare"; Rare - heard only once or twice. In this table, the phrase "used by 3 children" means that the total number of occurrences was too few to permit an estimate.

TABLE 5

/r/

SOUTHERN AND CHILDISH CHARACTERISTICS

Southern Characteristics	Frequency[1]
- loss of /r/ in final position in unisyllabic words e.g., air [ɛ:ə], car [kɑ:], chair ['tʃɛ:ə]	Dominant
- loss of /r/ in final, unstressed position in di-syllabic words, e.g., finger ['fɪŋgə], paper ['peɪpə]	Universal
- loss of /r/ in final consonant clusters e.g., rd bird [bɜ:], rl girl [gɜ:], rn turn [tɜ:n], rs horse [hɔəs], rz scissors ['ɵɪɵəz]	Universal

Childish Characteristics	
- [w] as an allophone in initial position, e.g., ran [wæn]	Dominant
- instability in initial consonant clusters, among the allophones [r], [w], [z] and omission, e.g., br brush [brʌʃ, bwʌʃ, bɛ:]	[r] Dominant [w] Frequent [z] Rare -Omission, occasional
dr drink [drɪŋk, dwɪŋk, dzɪŋk]	
gr green [grin, dwin]	
Gregory ['dzɛkərɪ]	
kr cream [krim, t'im]	
tr tree [tri, twi, t'i:]	
thr three [ɵri, fi, fwi]	
str straight [treɪt]	
- instability in intervocallic position, e.g., e.g., stories ['stɔriz, 'stɔ:iz], Larry ['læwi]	[r] Dominant [w] Occasional -Omission, occasional

[1] In describing frequency, the following terms are used: Universal - no other allophone heard; Dominant - heard in more words containing this phoneme than any other allophone; Frequent - heard in at least half the words containing the phoneme; Occasional - heard in fewer than half the words containing the phoneme, but oftener than "Rare;" Rare - heard only once or twice.

TABLE 6

CONSONANT OMISSION PATTERNS
CHILDISH, SOUTHERN, OR BLACK ENGLISH?

Phonemes		Frequency[1]
Stops		
/t/	- in medial position, e.g., eating [i:n]	Frequent
	- in final position, e.g., get [gɛ:]	Dominant
	- in final consonant clusters, e.g., ft soft [sɔ:f]	Dominant
	e.g., nt don't [doun] st last [lɑ:s]	
	xt (kst) next [nɛk] ts puts [pu:s]	
/d/	- in medial consonant clusters, e.g., ld building ['bi:lin]	Dominant
	ldr children ['tʃi:ən]	
	nd candy ['kæ:ni]	
	- in final position, e.g., did [di:]	Dominant
	- in final consonant clusters, e.g., ld cold [koul]	Dominant
	nd found [faun]	
	rd bird [bɜ:]	
Fricatives		
/s/	- in final position, e.g., glass [glæ:]	Frequent
/v/	- in final position, e.g., five [fa,:]	Dominant
Sonorants		
/m/	- medial in word, but final in syllable and preceding a consonant, following nasalization of preceding vowel, e.g., somebody ['sʌ̃:'bʌdi]	Occasional
	- in final position following nasalization of preceding vowel e.g., dime [dãi:], time [tãi:]	Occasional
/n/	- medial in word but final in syllable and preceding a consonant, following nasalization of preceding vowel, e.g., pencil ['pɛ̃:sə]	Dominant
	- in final position following nasalization of preceding vowel, e.g., can [kæ̃:]	Frequent
	- in final consonant cluster, following nasalization of preceding vowel, e.g., nd around [əraũ:]	Dominant
	ns guns [gʌ̃:]	
	nt don't [dõu:]	
	nts wants [wʌ̃:s]	
/l/	- in final position, e.g., bowl, [bou:], little ['li:tə]	Dominant
	- in final consonant clusters, e.g., lk milk [mi:ək]	Dominant
	lz falls [fɔz]	
	rl girl [gɜ:]	

[1] In describing frequency, the following terms are used: Universal - no other allophone heard; Dominant - heard in more words containing this phoneme than any other allophone; Frequent - heard in at least half the words containing the phoneme; Occasional - heard in fewer than half the words containing the phoneme, but oftener than "Rare;" Rare - heard only once or twice.

PART II

DISCUSSION

This study was conceived as a phonemic analysis of the language of five four-year-old speakers of Black English, with emphasis on ethnicity rather than age. The pervasiveness of the immaturity characteristics was such as to require their analysis in depth if the ethnic characteristics were even to be perceived. This discussion, then, deals with both language development and ethnic characteristics.

Four questions presented themselves in this analysis and are dealt with in its several parts:

1. Throughout the phonemic analysis, the presence of many allophones within consonant phonemes was evident. Some of these patterns were repetitive; some appeared to be hit-and-miss, largely non-repetitive in nature. The question: is there a pattern of articulatory features characterizing this proliferation of allophones?

2. How does the content of the children's phonemic system fit the various generalizations which linguists have developed concerning language development in children?

3. How do these children compare with their age-peers in phonetic articulation?

4. What are the ethnic qualities of the children's language?

LANGUAGE DEVELOPMENT

There are a number of excellent summaries of research into child language development, and this discussion leans heavily on them. Dorothea McCarthy (1954) surveyed the work published from 1915-1952, emphasizing the relationship of language development to psychological development, especially through the study of sentence length and vocabulary, but, reflecting the content of the studies of that period, with little emphasis on phonemics.[1] John B. Carroll (1960), whose bibliography covers research through 1957, covers the processes, stages, and aspects of language learning and gives more emphasis to phonology.[2] Walter MacGinitie (1969), like McCarthy and Carroll, provides a broad summary of language development research, and brings the survey through 1968; MacGinitie's article discusses also the contemporary emphases in the field, including computer analysis and the language competence theories conceptualized by generative grammarians, especially Noam Chomsky.[3] Of more immediate use to this writer in interpreting the findings of this research

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[1] Dorothea McCarthy, "Language Development in Children," in Manual of Child Psychology, ed. by Leonard Carmichael (2nd ed.; New York: John Wiley, 1954), pp. 492-630.

[2] John B. Carroll, "Language Development," Encyclopedia of Educational Research, ed. by Chester W. Harris (3rd ed.; New York: Macmillan, 1960), pp. 744-52.

[3] Walter MacGinitie, "Language Development," Encyclopedia of Educational Research, ed. by Robert L. Ebel (4th ed.; London: Collier Macmillan, Ltd., 1969), pp. 686-99.

were the summary chapters written by Ervin and Miller (1963)[4], and by Harris Winitz (1969).[5] Both of these works, especially the latter, cover the phonological studies in great detail, and in addition, attempt cautious generalizations based on the cumulative research.

The present discussion includes a brief restatement of the patterns indicating immaturity; an analysis of the articulatory characteristics of the unconventional allophones; a consideration of the immaturity patterns in the light of generalizations about child language development advanced by linguists; a comparison of these patterns with the articulatory patterns of age-peers as revealed in previous research.

The Patterns

The language of these children abounded in the specific consonant-allophone patterns which are popularly labelled "baby-talk." These included, among the stop consonant phonemes, the allophone [t] in the phoneme /k/ usually in initial position, and the allophone [d] in the phoneme /g/ in initial position; among the fricatives, the allophone [v] in the phoneme /ð/ in medial position, the allophone [θ] in the phoneme /s/ usually in initial position, the allophone [θ] in the phoneme /z/ in both medial and final position, and the allophone [s] in the phoneme /ʃ/ in initial and medial position; among the sonorants, the allophones [j] and [w] in the phoneme /l/, the former in initial position and the latter in initial consonant clusters; among the glides, the allophone [w] in the phoneme /r/ in initial and medial intervocallic position, and in initial consonant clusters. (See Table 3.)

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[4] Susan M. Ervin and Wick R. Miller, "Language Development," Child Psychology: The Sixty-second Yearbook of the National Society for the Study of Education, Part I (Chicago: University of Chicago Press, 1963), pp. 108-43.

[5] Harris Winitz, articulatory acquisition and behavior (New York: Appleton-Century-Crofts, 1969), Ch. 2, "Phonetic and Phonemic Development," pp. 55-138.

Other miscellaneous patterns signalled the youth of these speakers: the dominant omission of /s/ and the occasional omission of /l/ in initial consonant clusters (see Table 4); [tʃ] as an allophone in rare usage in the phonemes /t, k, s, θ/, and as a substitute for the consonant clusters tr, kl, sk, in initial position (see Table 4). More surprizing to this researcher, as an indication of immaturity, was the marked instability of consonant allophone patterns as revealed in the proliferation of allophones. Table 2 lists the unconventional allophones of all consonant phonemes in which they were heard. A majority of these patterns were "non-repetitive,"* heard only once or twice, and alternated irregularly with those allophones, both conventional and unconventional, which occurred with observable regularity.

Articulatory Characteristics of the Unconventional Allophones

In comparing manner of articulation, it was found that among stop consonants, approximately 2/3 of the unconventional allophones were also stop consonants; among fricatives, 1/2 the unconventional allophones were fricatives; among affricates, none of the four unconventional allophone patterns was an affricate; among sonorants, only 1 of the 5 unconventional allophones was a sonorant; among glides, one of three of the unconventionals was also a glide. Agreement in presence or absence of voicing, between conventional and unconventional allophones, characterized all categories of consonants to a high degree; 2/3 of the stop unconventional allophones, 7/8 of the fricative unconventionals, 3 of 4 affricate unconventionals, 4 of 5 sonorant unconventionals, and 3 of 3 glide unconventionals, agreed with the conventional allophones in this characteristic. Place of articulation was the primary differentiator between conventional and unconventional allophones for both stop consonants and fricatives; 2/3 of the unconventional stop allophones

and 3/4 of the unconventional fricative allophones disagreed with the conventional allophones in this characteristic. Among the affricates, 2 of 4 unconventionals disagreed with the conventionals; among the sonorants, 3 of 5, and among the glides, 2 of 3 disagreed in this characteristic. Among the affricates, sonorants, and glides, manner of articulation was more often the differentiator between conventional and unconventional allophones; however, the truer picture for these last three categories is that of much disagreement in both manner and place of articulation. (See Tables 7, 8, 9.)

TABLE 7
STOP CONSONANTS

THE ARTICULATORY CHARACTERISTICS OF UNCONVENTIONAL ALLOPHONES COMPARED WITH CONVENTIONAL ALLOPHONES: MANNER OF ARTICULATION, VOICING, AND PLACE OF ARTICULATION

Phoneme and Conventional Allophone	Unconventional Allophone ---	Characteristics of Unconventional Allophones: Manner of Articulation	Voicing	Place of Articulation[1]
/p/ [p] voiceless bilabial	[b]	stop	voiced	bilabial
/b/ [b] voiced bilabial	[p]	stop	voiceless	bilabial
	[g]	stop	voiced	velar
/t/ [t] dental-alveolar voiceless	[ʔ]	stop	voiceless	glottal
	[ʃ]	fricative	voiceless	alveolo-palatal
	[k]	stop	voiceless	velar
	[p]	stop	voiceless	bilabial
	[s]	fricative	voiceless	dental-alveolar
/d/ [d] dental-alveolar voiced	[ʔ]	stop	voiceless	glottal
/k/ [k] velar voiceless	[t]	stop	voiceless	dental-alveolar
	[tʃ]	fricative	voiceless	alveolo-palatal
/g/ [g] velar voiced	[ɟ]	stop	voiced	dental-alveolar
	[k]	stop	voiceless	velar
	[t]	stop	voiceless	dental-alveolar
	[dʒ]	affricate	voiced	alveolo-palatal

Summary: In manner of articulation, and in voicing, the unconventional allophones of the stop consonant phonemes usually agreed with the conventional allophones. In 11 of 15 allophone patterns, the conventional stop consonant allophone was replaced by an unconventional stop consonant allophone. In 10 of 15 patterns, the conventional allophone was replaced by an unconventional allophone, identical in the presence or absence of voicing.

. Place of articulation was the primary differentiator between the conventional and unconventional allophones. In 11 of 15 patterns, the unconvnentional allophone differed fron the conventional in place of articulation.

[1] "Place of articulation" is designated according to The International Phonetic Alphabet (Revised to 1951) table as reproduced in The Principles of the International Phonetic Association, published by the International Phonetic Association, London, 1961.

FRICATIVE CONSONANTS

THE ARTICULATORY CHARACTERISTICS OF UNCONVENTIONAL ALLOPHONES COMPARED WITH CONVENTIONAL ALLOPHONES: MANNER OF ARTICULATION, VOICING, PLACE OF ARTICULATION

Phoneme and Conventional Allophone	Unconventional Allophone	Characteristics of Unconventional Allophones: Manner of Articulation	Voicing	Place of Articulation [1]
/f/ [f] voiceless labio-dental	[p]	stop	voiceless	bilabial
/v/ [v] voiced labio-dental	[k]	stop	voiceless	velar
	[w]	non-fricative, continuant	voiced	labio-velar
/ð/ [ð] voiced dental&alveolar	[d]	stop	voiced	dental & alveolar
	[v]	fricative	voiced	labio-dental
	[j]	non-fricative, continuant	voiced	palatal
/θ/ [θ] voiceless dental&alveolar	[f]	fricative	voiceless	labio-dental
	[t]	stop	voiceless	dental&alveolar
	[ʧ]	affricate	voiceless	alveolo-palatal
	[p]	stop	voiceless	bilabial
/s/ [s] voiceless dental&alveolar [2] (tongue-blade-alv.)	[θ]	fricative	voiceless	dental&alveolar [2] (tongue-blade-teeth)
	[ʃ]	fricative	voiceless	palato-alveolar
	[ʧ]	affricate	voiceless	alveolo-palatal
/z/ [z] voiced dental&alveolar [2] (tongue-blade-alv.)	[θ]	fricative	voiceless	dental&alveolar [2] (tongue-blade-teeth)
	[ʒ]	fricative	voiced	palato-alveolar
/ʃ/ voiceless alveolo-palatal	[s]	fricative	voiceless	dental&alveolar

Summary: The unconventional allophones of the fricative consonants showed some agreement with the conventional allophones in manner of articulation, much agreement in presence or absence of voicing, and very little agreement in place of articulation. Eight of the 16 unconventional allophones were also fricative continuants. Fourteen of the 16 agreed in presence or absence of voicing. Following IPA table, 12 of the 16 disagreed in place of articulation; refining the IPA category of "dental & alveolar" increases the disagreement to 14 of 16. (See footnotes below).

[1] "Place of articulation" is designated according to the International Phonetic Alphabet (Revised to 1951) table, published by the International Phonetic Association, London, 1961.

[2] John S. Kenyon, American Pronunciation (10th ed., Ann Arbor: George Wahr Publ. Co., 1951), p. 37.

AFFRICATES, SONORANTS, AND GLIDES

THE ARTICULATORY CHARACTERISTICS OF UNCONVENTIONAL ALLOPHONES COMPARED WITH CONVENTIONAL ALLOPHONES: MANNER OF ARTICULATION, VOICING, PLACE OF ARTICULATION

	Phoneme and Conventional Allophone	Unconventional Allophone	Characteristics of Unconventional Allophones: Manner of Articulation	Voicing	Place of Articulation [1]
Affricates	/ʃ/ [ʃ] Alveolo-palatal voiceless	[tʃ]	fricative	voiceless	palato-alveolar
	/ʤ/ [ʤ] Alveolo-palatal voiced	[dʒ]	fricative	voiced	palato-alveolar
		[dz]	fricative	voiced	dental&alveolar
		[ts]	stop	voiceless	dental&alveolar
Sonorants	/m/ [m] Bilabial, voiced	[n]	sonorant	voiced	dental&alveolar
		[p]	stop	voiceless	bilabial
	/l/ [l] Dental&alveolar, voiced	[j]	semi-vowel	voiced	palatal
		[d]	stop	voiced	dental&alveolar
		[w]	semi-vowel	voiced	bilabial
Glides	/w/ [w] Bilabial, voiced	[v]	fricative	voiced	labio-dental
		[b]	stop	voiced	bilabial
	/r/ [r] Retroflex, voiced	[w]	glide	voiced	bilabial

Summary: The majority of unconventional allophones within the affricate, sonorant, and glide consonant categories differed in manner of articulation from the conventional allophones. The majority in each of those three categories agreed in the presence or absence of voicing. In 2 of the 3 categories, the majority disagreed in the place of articulation; in the third category, half agreed and half disagreed in the place of articulation. All the unconventional allophones of the affricate phonemes, 4 of 5 of the unconventional allophones of the sonorants, and 2 of 3 of the glides disagreed with the conventional allophones in manner of articulation. Three of 4 of the unconventional allophone patterns of the affricate phonemes, 4 of 5 of the sonorant unconventionals, and 3 of 3 of the glide unconventionals agreed with the conventional allophones in presence or absence of voicing. Two of 4 of the unconventional allophone patterns of the affricates, 3 of 5 of the sonorant unconventionals, and 2 of 3 of the glide unconventionals, disagreed with the conventional allophones in place of articulation.

[1] Except for the phoneme /r/, the descriptions of manner and place of articulation follow the categories of the IPA table (revised to 1961), published by the International Phonetic Association, London, 1961.

Linguists' Generalizations About Child Language Development

On the basis of studies of language development of infants and very young children, linguists have moved cautiously toward generalization, both theoretical and empirical. In 1941,[6] Jakobson, concerned with distinguishing the learning of phonemic contrasts from babbling, proffered the hypothesis that phonological development, "viewed as the progressive differentiation of the phonemes of the community language,"[7] reveals universal human regularities. In this work, he described the sequence in which phonemic contrasts seem to emerge in any language, and in 1956, with Halle[8] he set forth such a sequence. This theory, probably more than any other, commands the attention and respect of contemporary linguists attempting to understand phonemic acquisition in children. Most evaluators are quick to point out, however, that empirical support for it is as yet inadequate. Some offer their own generalizations, usually of a more limited nature, restricted by contemporary research findings.

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[6] Roman Jakobson, Kindersprache, Aphasie und Allegemeine Lautgesetze (Uppsala: Almquist and Wiksell, 1941).

[7] This quotation, as well as this summary explanation of Jakobson's work, is taken from Jean Berko and R. Brown, "Psycholinguistic Research Methods," in Handbook of Research Methods in Child Development, ed. by P.H. Mussen (New York: Wiley, 1960), p. 528.

[8] Roman Jakobson and M. Halle, Fundamentals of Language (The Hague: Mouton and Co., 1956).

The Jakobson and Halle theory assumes an underlying order in which the greatest phonemic distinctions are made first, and the smaller distinctions follow later. Winitz describes it as,

> essentially a discrimination hypothesis in that physical stimuli that are most distinctive are learned first and discriminations among finer and finer differences are subsequently learned. 9

This theory assumes that the order underlying the process of development of phoneme contrasts lies in phonemic features rather than in the phonemes themselves. Winitz has applied the Jacobson and Halle schema to the English language,[10] and the data from the present study are examined in the context of Winitz' application of Jacobson and Halle to English. The examination of the data of the present study does not speak to the theory's underlying assumptions; it is limited to consonantal phoneme contrast; and, while the theory is essentially developmental, the data of this study belong to children who had just recently achieved their fourth birthday.

The Jakobson and Halle model for the development of phoneme contrasts, as applied to English by Winitz, includes the following progressive steps in the development of consonant phonemes: (1) the consonant vowel split; (2) nasal consonants vs. oral consonants; (3) dental vs. labial consonants; (4) velopalatal vs. labial and dental consonants; (5) palatal vs. velar consonants.

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9 Winitz, op. cit., p. 89.

10 Ibid., pp. 90-96.

Consonants vs. vowels. The phonemic analysis of the language of these children revealed only one area of overlap between consonants and vowels: the use of the unstressed central [ə] as an allophone of the phoneme /r/ in final position in monosyllabic words. (See Table 5.)

Nasal vs. oral consonants. In the phonemes of these children, there was one instance of the sonorant phonemes /m,n,ŋ/ including a non-sonorant allophone: the phoneme /m/ included the non-sonorant, stop-consonant [p] as a rare allophone. In no instance did the stops, fricatives, affricates, or glides include a sonorant as an allophone. (See Tables 7,8,9.)

Dental vs. labial consonants. In the children's phonemes, there was one pattern of overlap between dental and labial consonants: the inclusion of the rare allophone [p] in the phoneme /t/. The dental phonemes /d,s,z,n,ŋ/ included none of the labials [p,b,f,v,m] as allophones. Neither did the labial phonemes /p,b,f,v,m/ include any of the dentals [t,d,s,z,n,ŋ] as allophones. (See Tables 7,8,9.)

Veleopalatal vs. labial and dental consonants. In the children's language, 5 of the 8 veleopalatal phonemes /ʃ, ʧ, ʒ, ʤ, k, g, r, ŋ/ included labial or dental consonant allophones: /ʃ/ included [s] ; /ʤ/ included [z] and [t] ; /k/ included [t] ; /g/ included [d] and [t] ; /r/ included [w]. Six of the 12 labial and dental consonant phonemes /f, v, p, b, s, z, d, t, θ, ð, l, n/ included veleopalatal allophones: /v/ included [k] ; /b/ included [g] ; /s/ included [ʃ] and [ʧ] ; /z/ included [ʒ] ; /t/ included [ʧ] and [k] ; /θ/ included [ʧ] . (See Tables 7, 8, 9.)

Palatal vs. velar consonant. In the children's phonemes, the palatal consonants /ʤ, ʧ, ʃ, and ʒ/ included none of the velar allophones [k, g, ŋ, r]. Two of the velar phonemes included rare palatal allophones: /k/ included [ʧ] and /g/ included [ʤ]. The phonemes /r/ and /ŋ/ included no palatal allophones.

In a general way, the pattern of consonantal phonemic contrasts which had developed in the language of these children at the completion of their fourth year was confirming of the Jakobson and Halle hypothesis. The first three stages of development as identified by Jakobson and Halle, and applied by Winitz to English, were for the study group, areas of phoneme contrast in which overlap was minimal: consonants vs. vowels, nasal consonants vs. oral consonants; dental vs. labial consonants. Clearly these children had mastered those three categories of contrastive patterns; the evidence does not speak to the order in which they were mastered. It is equally clear, however, that the children in the study group had not mastered the phonemic contrasts outlined by Jakobson and Halle as the 4th and 5th stages of consonant phoneme development: the velopalatal vs. labial and dental consonants, and palatal vs. velar consonants.

Ervin and Miller[11] cite the following generalizations about language development in children as those which have the widest support. They describe them as the "most tenable current hypotheses" which must nevertheless be viewed with great caution in view of the small sample and restricted range of languages on which they are based:

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[11] Op. cit., p. 113-114.

> (a) The vowel-consonant contrast is one of the earliest, if not the earliest, contrast for all the children. (b) A stop-continuant contrast is quite early for all children. The continuant is either a fricative (e.g.,/f/ or a nasal (e.g., /m/). (c) When two consonants, differing in place of articulation but identical in manner of articulation exist, the contrast is labial vs. dental (e.g., /p/ vs. /t/, /m/ vs. /n/). (d) Contrasts in place of articulation precede voicing contrasts. (e) Affricates (ch, j) and liquids (l,r) do not appear in the early systems. (f) In the vowels, a contrast between low and high (e.g., /a/ and /i/ precedes front vs. back (e.g., /i/ and /u/). (g) Consonant clusters such as /st/ and /tr/ are generally late. [12]

As with the Jakobson and Halle generalizations, the Ervin and Miller statements are based on sequence of appearance of contrastive patterns, while the present analysis deals with patterns established at the completion of the 4th year. The objective of this analysis is to determine if the contrastive patterns clearly established in the language of the study group agree with those Ervin and Miller identify as appearing early, and whether the patterns not clearly established agree with those identified as appearing late.

Examination of the findings of the present study in the context of the Ervin and Miller generalizations yields the following results: (a) as noted in the consideration of the Jakobson-Halle hypothesis, the vowel-consonant contrast was firmly established in the language of these children, with only minimal overlap in that the phoneme /r/ included the central vowel allophone [ə] . (b) The stop-continuant contrast, cited by Ervin and Miller

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[12] Ibid.

as occurring quite early was less firmly established in the speech of these four-year-olds. Among the stops, approximately 1/3 of the unconventional allophones were continuants (See Table 7); among the fricatives, approximately 1/3 of the unconventional allophones were stops; among the sonorants and glides, taken together, 3 of 8 unconventional allophones were stop consonants. (See Tables 8 and 9.) (c) The labial vs. dental split was firmly established in the phonemes of these children. Overlap, as reflected in the inclusion of unconventional allophones in either category, was minimal. (See Tables 7,8,9.) (d) "Contrasts in place of articulation precede voicing contrasts." While this statement may well be true in the actual process of language learning of children, it was not true for this group of four-year-olds at this stopping point. Agreement in presence or absence of voicing between conventional and unconventional allophones characterized all categories of consonant phonemes to a very high degree. (See above: "Articulatory characteristics of the unconventional allophones.") Place of articulation, on the other hand, remained the primary differentiator between conventional and unconventional allophones for both stop consonants and fricatives. (e) The affricates /tʃ/ and /dʒ/ and the liquids /l/ and /r/ were all in evidence in the speech of these children, the affricates heard infrequently and characterized by unconventional allophones (See Table 9), and the liquids characterized by omission and inclusion of unconventional allophones. Ervin and Miller stated that the affricates and liquids "do not appear in early systems." Our evidence would seem to support their generalization, in that these phonemes were weakened through omission and unconventional allophones, indicating that the study group children were still in the process of mastering these contrastive patterns. (f) "In the vowels,

a contrast between low and high (. . .) precedes front vs. back (. . .)." The data from the present study gave no evidence on this statement. (g) "Consonant clusters such as /st/ and /tr/ are generally late." The language of the study group included numerous examples of consonant clusters being weakened either by omission of one phone or by the inclusion of unconventional allophones for one or both phones. Included among such clusters were: tr, kl, sk, sm, sn, sp, st, str, bl, fl, pl, sl, br, dr, gr, kr, tr, thr .**

In a general way, the data from the present study support the hypotheses put forth by Jakobson and Halle, and by Ervin and Miller. The contrastive patterns which these authors identify as appearing early in the language development of children are the patterns clearly established in the language of the study group; the contrastive patterns identified as appearing late are present in the speech of the study group, but not mastered, that is, the phonemes are characterized by unconventional allophones and/or omission. There are exceptions to this overall agreement: In the language of the study group, there was more overlap between the veleopalatal and labial and dental consonants than between palatal and velar consonants; the Jakobson and Halle hypothesis identifies a reverse order of appearance. Similarly, the stop-continuant contrast was by no means mastered in the language of the study group; Ervin and Miller identify this contrast as one which appears early. Voicing contrasts were largely mastered by the study group, while place of articulation contrasts were not; the Ervin and Miller statements identify a reverse sequence for appearance of these contrasts. In interpreting these findings, it is necessary to keep in mind that our data speak to establishment or mastery of the contrastive patterns while the earlier hypotheses are concerned with appearance. These data suggest that sequential appearance and sequential mastery are not the same.

** The fact that these children were learning Black English is recognized but ignored in this discussion. The point is particularly notable in the discussion of consonant clusters. See section on "Ethnic Characteristics."

A comparison of the articulatory patterns of the study group with those of age-peers as revealed in previous studies. Comparisons of the findings of this study with earlier studies of child articulatory patterns must be made cautiously. Most such studies used a testing methodology in a normative context; the testers were attempting to discover at what age level children could articulate sounds "correctly." The present study aimed at discovering actual language performance, rather than ability to pronounce, through phonemic analysis, in a completely non-normative context.

Winitz presents a table which summarizes the evidence from three major studies.[13] Juxtaposition of the findings of the present study reveals that, to a large extent, consonant phonemes characterized by proliferation of allophones, by pervasive allophones, or by pervasive omission in the language of our study group, are the same consonants which the earlier studies identified as "correctly pronounced" only at the age of 4 years or later: /n,ŋ,d,g,r,s,ʃ,t,θ,v,l,ð,ʤ/. These four-year-old speakers of Black English were quite similar to their age peers in their ability to articulate the consonant sounds of American English. No inference that these children are like their age-peers in actual language performance can be drawn from this comparison.

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[13] Winitz, op.cit., p. 58.

A COMPARISON OF THE ARTICULATORY PATTERNS OF FOUR-YEAR-OLD SPEAKERS OF BLACK ENGLISH WITH THOSE OF AGE-PEERS REPORTED IN PREVIOUS STUDIES

[Table 2.1]** Comparison of the Ages at Which Subjects Correctly Produced Specific Consonant Sounds in the Templin, the Wellman, and the Poole Studies*

Sound	Age Correctly Produced: TEMPLIN (1957)	WELLMAN AND OTHERS (1931)	POOLE (1934)
m	3	3	3.5
n	3	3	4.5
ŋ	3	—[a]	4.5
p	3	4	3.5
f	3	3	5.5
h	3	3	3.5
w	3	3	3.5
j	3.5	4	4.5
k	4	4	4.5
b	4	3	3.5
d	4	5	4.5
g	4	4	4.5
r	4	5	7.5
s	4.5	5	7.5[b]
ʃ	4.5	—[c]	6.5
tʃ	4.5	5	—[c]
t	6	5	4.5
θ	6	—[a]	7.5[b]
v	6	5	6.5[b]
l	6	4	6.5
ð	7	—[c]	6.5
z	7	5	7.5[b]
ʒ	7	—[c]	6.5
dʒ	7	6	—[c]
hw	—[a]	—[a]	7.5

* In the Wellman and others, and Templin studies a sound was considered mastered if it was articulated correctly by 75 percent of the subjects. The criterion of correct production was 100 percent in the Poole study.

[a] Sound was tested but was not produced correctly by 75 percent of the subjects at the oldest age tested. In the Wellman data the "hw" reached the percentage criterion at 5 but not at 6 years, the medial "ŋ" reached it at 3, and the initial and medial "θ" and "ð" at 5 years.

[b] Poole (Davis, 1938), in a study of 20,000 preschool and school-age children reports the following shifts: "s" and "z" appear at 5.5 years, then disappear and return later at 7.5 years or above; "θ" appears at 6.5 years and "v" at 5.5 years.

[c] Sound not tested or not reported.

SOURCE: Templin, M. C. Certain language skills in children, their development and interrelationships. *Institute of Child Welfare, Monograph Series*, No. 26, 54. Minneapolis: University of Minnesota Press, 1957.

Consonant phonemes characterized by proliferation of unconventional allophones, pervasive unconventional allophones, or pervasive omission patterns in language of four-year-old speakers of Black English[1]

Phoneme	Proliferation of Allophones	Pervasive Allophones	Pervasive Omission
/n/			X
/ŋ/			X
/d/			X
/g/	X		
/r/		X	X
/s/	X		X
/ʃ/		X	
/tʃ/	X		X
/θ/	X	X	
/v/			X
/l/	X		X
/ð/	X	X	
/dʒ/	X		

[1] "Proliferation of unconventional allophones" means, in this table, 3 or more unconventional allophones in the phoneme. "Pervasive unconventional allophones" means that the phoneme includes at least one unconventional allophone which occurs either more frequently than any other allophone or in at least half the words in which the phoneme appears. "Pervasive omission" means that omission of the phoneme in at least one position is more frequent than any allophone, or that omission occurs in at least half the words in which the phoneme occurs.

** Winitz, op.cit., p. 58. This table is reproduced with the permission of

The studies referred to are: Templin, M.C. Certain language skills in children, their development and interrelationships. Institute of Child Welfare, Monograph Series, No. 26, 54. University of Minnesota Press, 1957; Wellman, B.L., et.al. Speech sounds of young children. University of Iowa Studies in Child Welfare, 193 ; Poole, I. Genetic development of articulation of consonant sounds in speech. Elementary English Review, 1934, 11, 159-161.

ETHNIC CHARACTERISTICS

Two problematics affect the analysis and interpretation of the characteristics of the children's language which are here labelled ethnic. The first is the ongoing controversy among linguists as to the relationship between the speech of Negroes and whites of the same regional derivation and socio-economic status. The second is that certain phenomena of the children's language are claimed by students of both Black English and child-English as peculiar to their study populations. The label "ethnic characteristics" is arbitrarily adopted here to head up the discussion of these two issues.

"Southern" Characteristics

The controversy surrounding the relationship between uneducated Nwgro and white speech in the United States has been well summarized by both Dillard (1968),[14] and Wolfram (1969).[15] In essence, the dialect geographers have assumed and asserted that the language spoken by uneducated blacks and whites of similar Southern regional derivation in the United States is, by-and-large, the same.[16] Creole specialists are

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[14] J. L. Dillard, "Non-Standard Negro Dialects: Convergence or Divergence?" in Afro-American Anthropology, ed. by Norman E. Whitten and John F. Szwed (New York: The Free Press, 1970), pp. 119-127.

[15] Walter A. Wolfram, A Sociolinguistic Description of Detroit Negro Speech (Washington: Center for Applied Linguistics, 1969), pp. 9-14.

[16] Important studies of this genre include: George P. Krapp, "The English of the Negro American," Mercury, 2 (1924), 190-195; Hans Kurath, "The Origin of Dialectal Differences in Spoken American English," Modern Philology, 25 (1928), 385-389, and, A Word Geography of the Eastern United States (Ann Arbor: University of Michigan Press, 1949); Raven McDavid, "The Relationship of the Speech of American Negroes to the Speech of American Whites," American Speech, 26 (1951), 2-17, and, "American Social Dialects," College English, 26 (1965), 254-260; Juanita Williamson, A Phonological and Morphological Study of the Speech of the Negro of Memphis, Tennessee (unpublished Ph.D. dissertation, University of Michigan, 1961).

presently asserting, with even more vigor, that the language of the two groups is markedly different.[17] Wolfram explains this difference of opinion as largely the result of the former's concern with the phonological and lexical, where the differences, so far as known, appear to be minimal; and the latter's concern with grammatical categories, where the differences, so far as known, appear to be subtle, but more substantial.[18] The dialectologists see uneducated Negro and white speech of the American South as both deriving from the East Anglian dialect of British English. The creolists offer persuasive arguments that present-day American Negro dialect derives from a creole variety used by the earliest slaves and passed along to succeeding generations.

The fact is that the evidence is not yet in. Comparative studies between black and white populations, controlled for geography and socio-economic status, have yet to be attempted.

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[17] Representative statements include: Beryl L. Bailey, "Toward a New Perspective in Negro English Dialectology," American Speech, 40 (1965), 171-177; William A. Stewart, "Sociolinguistic Factors in the History of American Negro Dialects," The Florida FL Reporter, 5:2 (1967), and "Continuity and Change in American Negro Dialects," The Florida FL Reporter, 6:1 (1968); J. L. Dillard, op. cit.

[18] Wolfram, op. cit., p. 12.

The findings of the present study throw no light on the controversy between dialectologists and creolists, but the controversy does provide a context within which certain data from this study must be viewed: those characteristics of the children's speech which might be variously labelled "Southern," "Black English," or "ethnic." In the writer's opinion, none of these labels fits the data. It is true that practically all the phenomena identified as "Southern" in this study has been identified as such by the dialect-geographers, whose data come primarily from the study of whites. But most of these characteristics have been identified also as characteristic of Black English. Lastly, the term "ethnic" is hardly appropriate when the phenomena under consideration characterizes both blacks and whites.

The language phenomena under consideration here include: (1) a spectrum of Southern allophones in the vowel phonemes, usually in rare usage (See Table 1); (2) the occasional Southern allophone [aɪ] in the diphthong phoneme /aɪ/, and the frequent Southern allophone [æʊ] in the diphthong phoneme /aʊ/ (See Table 1); (3) the marked weakening of the phoneme /r/ in final position (See Table 5); and (4) the dominant usages [ɪn] and/or [ən] for the participial ending ing [ɪŋ]. All of the data encompassed in the above summary statement, with one exception,[19] have been identified by the dialect

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[19] The exception, not found in the earlier studies, is the stress pattern characterizing the words ambulance and police which is attended by a vowel usage differing from that of Standard English. (See Table 1) The same phenomenon was noted by Putnam and O'Hern in an earlier study of Washington Negro speech in the words monument, Providence, president, and ambulance. (See G. N. Putnam, M.M., and Edna M. O'Hern, "The Status Significance of an Isolated Urban Dialect," Language Supplement, 31:4:2 (Oct.-Dec., 1955), 9.) That the phenomenon is "Southern" rather than Black English is suggested by an Arrid Extra-Dry television commercial heard in New York in February, 1971, in which a resident of Norfolk, Virginia, talks about how important it is to feel confident [ˈkɑn fɪˈdənt]. The speaker is white.

geographers as "Southernisms."[20] While neither of the recent major studies of Black English[21] has much to say about vowel or diphthong usage, concentrating instead on consonantal and grammatical phenomena, each testifies to the widespread presence of the weakened /r/ and the participial ending [ɪn] among their study populations. Some evidence testifying to the vowel usages among one groups of Negroes in Washington, D.C., studied in 1953, is given by the Putnam and O'Hern study[22] which identifies 9 of the 13 vowel and diphthong usages which characterized the speech of the children in the present study. In 4 of these 9 instances, the phenomena were noticeably more common to the speech of the 1953 adults than they were among the present group of children; in no case was the Southern trait more common among the children than among the 1953 adults.[23]

In this study, a significant part of the speech of these children was similar to the speech of Southern whites, as identified by the dialect geographers, and, at the same time, to the Black English patterns identified in recent studies.

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[20] The term "Southerism" is used hereto include the many characteristics of southern speech identified by dialect-geographers, who are careful to distinguish differential prevalence among different geographical areas. --- The phenomena identified as "Southern" in this summary paragraph have been identified as such by one or more of the following authors: Arthur J. Bronstein, The Pronunciation of American English (New York: Apple-Century-Crofts, 1960); John S. Kenyon, American Pronunciation (10th ed.; Ann Arbor: George Wahr Publ. Co., 1951); John S. Kenyon and Thomas A. Knott, A Pronouncing Dictionary of American English (Springfield, Mass.: G. & C. Merriam Co., 1953); Hans Kurath and Raven I. McDavid, The Pronunciation of English in the Atlantic States (Ann Arbor: University of Michigan Press, 1961); H.L. Mencken, The American Language (4th ed., 1st abridged ed.; New York: Alfred A. Knopf, 1963); Charles K. Thomas, The Phonetics of American Speech (2nd ed., New York: Ronald Press, 1958).

[21] Wolfram, op.cit., and William Labov, et.al., A Study of the Non-Standard English of Negro and Puerto Rican Speakers in New York City, Vol. I. Phonological and Grammatical Analysis. U.S. Department of Health, Education, and Welfare, Office of Education, Cooperative Research Project No. 3288, 1968.

[22] Putnam and O'Hern, op. cit., pp. 8-12.

[23] The traits more common among the adults were: [eɪ] in /ɛ/, [oʊ] in /ɔ/; [ɑɪ] in /aɪ/, and [æʊ] in /aʊ/.

Among those patterns whose identity is difficult to establish inasmuch as analyses of both childish speech and Black English claim them, are (1) the dominant stop consonant allophone [d] in the fricative phoneme /ð/ in initial position; (2) the dominant fricative allophone [f] in the fricative phoneme /θ/; (3) pervasive consonant omission patterns, including the stop consonants /t/ and /d/ the fricatives /s/ and /v/, the sonorants /m/, /n/, and /l/, all in final position, and some also in medial position; at times singly and at times in consonant clusters.

[d] in /ð/ and [f] in /θ/. The present study found the stop consonant [d] allophone to be dominant in the phoneme /ð/ in initial position (the [də], them [dɛm], they [deɪ]), although [ð] and [j] also occurred in that position (there [ðɛ:ə], that [jæt]), and identified the allophones [ð, d, and v] in medial position, with no marked dominance of any one allophone (brother ['bwəvə], either ['i ðə] other ['ʌdə]).

The present study found the fricative allophone [f] to be dominant in the phoneme /θ/, although it alternated with the allophones [θ, t, tʃ] in initial position (three [θri, fwi, tri], thirsty ['tʃə:ti]); with [p] in medial position; and with [θ, t] and omission in final position (birthday ['bɜ:fdeɪ], something ['sʌmpɪn]; bath [bæθ, bæf], teeth [ti:], with [wɪt]).

Fasold and Wolfram's non-technical summary of the linguistic features of "Negro dialect"[24] state that the th in words like the, they (/ð/) are frequently pronounced de, dey, respectively, and that in some varieties of Negro dialect, words like brother and bathing are pronounced bruvah and bavin. In medial position, the th is sometimes omitted completely. These authors state that words like thought and think (/θ/) sometimes are pronounced tought and tink, and when the th is followed by an r, as in three, the initial sound might be an f. In medial position, they identified the f as most frequent, nothing, for example, being pronounced nuf'n. When the voiceless th is followed by a nasal m or n, the th might be pronounced t, e.g., nothing might become nut'n.

It is clear that the pattern of usage characterizing the dental fricative phonemes of the children in the present study, while not identical with the analysis provided by Fasold and Wolfram, is highly similar. It would therefore seem safe to say that in these patterns the children are clearly reflecting the BE of the adults with whom they interact. Yet Metraux's data indicate that the interchange of the allophone [dɔ] for [ð] in the phoneme /ð/, and of the allophone [fɔ] for [θ] in the phoneme /θ/ is characteristic of children whose native language is SE and who are 48 months old:

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[24] Ralph W. Fasold and Walt Wolfram, "Some Linguistic Features of Negro Dialect," reprinted by permission from Teaching Standard English in the Inner City, edited by Ralph W. Fasold and Roger W. Shuy (Washington, D.C.: Center for Applied Linguistics, 1970). The authors of this article identify its purpose as to "present the information currently available on the linguistic features of Negro dialect in non-technical language, but in sufficient detail to be useful...." They describe the analysis as based on careful research, with "all the source material... in the bibliography." They define Negro dialect as "... a cohesive linguistic system which is substantially different from standard American English dialects. It is spoken by some, though not all Negroes, particularly those of the lower socioeconomic classes.... almost all the features associated with Negro dialect alternate with standard English forms in actual speech." For more technical analyses of BE usages within the fricative dental phonemes of SE, see Wolfram, op.cit., pp. 51, 94, 95, and Labov, et.al., op.cit., pp. 92-93.

....As with 'through,' we may hear [fru] then [θru] ;
or 'that's' may be [ðæts] and in a few seconds [dæs]. [25]

While there is little published data available to support Metraux's analysis of the four-year-old speakers of SE, there are probably few readers of this report who would be surprized to hear four-year-old speakers of SE discussing their brothers ['bwʌvəz], their thumbs [fʌmz], their birthdays ['bɜ:fdeɪz], or their mouths [moufs].

Widespread omission patterns. Similarly, the widespread consonant omission patterns which characterized the children in this study may be attributable to either the Black English which the children were learning, or to their immaturity as speakers of any kind of English. The patterns under consideration here include the stop consonants /t/ and /d/, the fricatives /s/ and /v/ the sonorants /m/, /n/, and /l/, either singly or in consonant clusters, or both, in final position, and for some of these phonemes, also in medial position.

Two phenomena, described by Fasold and Wolfram as characteristic [26] undoubtedly explain a significant proportion of these patterns: word-final consonant cluster reduction, and vowel-nasalization. In the present study, word-final consonant clusters ft, st, ld, and nd frequently lost the final stop consonant; this reduction occurred in the words soft, just, last, cold, old, and, found, hand, kind, around, second. Fasold and

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[25] Ruth W. Metraux, "Speech Profiles of the Pre-School Child 18 to 54 Months," Journal of Speech and Hearing Disorders, 15 (1950), 37-53.

[26] Fasold and Wolfram, op. cit., pp. 3-6; 15-16.

Wolfram note, that among some dialect speakers , "most typically Negro children," the loss of the second component of the cluster occurs also in medial position when a suffix beginning with a vowel is added to the base word. This pronunciation was noted in our study group in the words building, holding, candy, and standing.

Vowel-nasalization, which Fasold and Wolfram describe as "similar to the type of nasalization of vowels that is found in a language such as French," was very common among the children of our study group. This phenomenon accounted for the loss of the syllable-final consonants m, n, nd and nt in such words as dime, some, time; can, cone, mine, wine; engine, Indian, pencil; around, second; don't, can't, want.

Omission of l among our study group was common in final post-vocallic position; this pattern is also identified by Fasold and Wolfram as characteristic. It occurred in our children in such words as nickle, table, bicycle, little, pencil, turtle, where the word ending became a schwa [ə] , or uh. These authors classify the /l/ omission with the /r/, as following similar patterns.

Fasold and Wolfram's analysis of linguistic features of Negro dialect explains many, but not all, of the omission patterns characterizing the speech of our children. There are two pervasive patterns which remain unexplained: (1) the omission of final /t/, /d/, /s/ and /v/ in monosyllabic words in final position: boat, get, got, out, put, that, what, write; did, food, led, loud, side, would; glass, grass, house, ice, juice; drive, give, have; (2) the omission of medial /t/ in participals: eating, getting, putting, sitting [i:ɪn, gɛ:ɪn, pu:ɪn, sɪ:ɪn] . Fasold and Wolfram do note that deletion of final d does occur among some speakers, but

they describe it as less frequent than devoicing, a phonomenon which was not noted among our study group.

An unknown amount of consonant omission among the children in our study group may be due to the immaturity of these speakers. Ervin and Miller list the appearance of consonant clusters such as st and tr as "generally late" in the language development of children.[27] It is worth noting that one of the clusters they cite, st, is also one which has great significance for Negro dialect. Winitz, in discussing omission as a speech characteristic of young children, describes it as "not a frequent error." However, his further analysis of Templin's data, is significant for a possible understanding of the widespread omission, in final position in monosyllabic words, of the phonemes /t/, /d/, /s/ and /v/, among the children in our study group.

> Templin's data.... reveal that omission errors occur with greater frequency in the final position than in the initial and medial positions of words.... The percentage of omission errors in the initial position ranges from 0 (seven years) to 6.1 (three and a half years); in the medial position from 1.5 (seven years) to 9.7 (three years); in the final position from 5.4 (eight years) to 23.2 (three years).... 28

In this study, a significant part of the children's language reflected the Black English of the adults with whom they interacted. Yet certain features of their language, considered highly characteristic of BE, can also be identified as characterizing the speech of children in the process of learning Standard English.

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27 Op.cit., pp. 113-114.

28 Op.cit., p. 118. He is citing Mildred C. Templin, Certain Language Skills in Children (Minneapolis: University of Minnesota Press, 1957). The description of these omissions as "errors" is one with which the present writer does not agree.

SUMMARY AND CONCLUSIONS

The phonological analysis of the language of five four-year-old speakers of Black English, residents of Washington's Negro ghetto, was undertaken with the purpose of analysis of BE at that age level. The effect of immaturity on the speech of these children was so pervasive as to necessitate analysis in depth.

The immaturity characteristics included certain specific "baby-talk" patterns, that is, the inclusion of allophones in consonant phonemes, and certain omission patterns, the combination of which are ordinarily considered as childish lisp. In addition, the children's language was characterized by a marked proliferation of allophones in consonant phonemes, including many unstable, apparently non-repetitive patterns.

Analysis of the articulatory features of the unconventional allophones of the consonant phonemes revealed: (1) agreement in the presence or absence of voicing, with the conventional allophone, characterized all categories of consonants to a high degree; (2) Within the stop and fricative consonant categories, at least one-half of the unconventional allophones agreed with the conventional in manner of articulation; within the affricate, sonorant and glide categories, fewer than half the unconventionals agreed in manner of articulation; (3) Within the stop and fricative categories, place of articulation was the primary differentiator between conventional and unconventional allophones, with fewer than one-third of the stop and one-fourth of the fricative unconventional allophones agreeing with the conventional in this characteristic. It was less important as differentiator than manner of articulation for the other categories of consonants.

A consideration of the data of this study in the light of linguists' generalizations about language development in children, revealed that, for the most part, the data supported the hypotheses put forth by Jakobson and Halle, on the one hand, and Ervin and Miller, on the other. The contrastive patterns which these linguists had identified as appearing early in the language development of children are the contrastive patterns clearly established in the language of the study group. The contrastive patterns identified as appearing late are present in the speech of the study group, but not mastered.

A comparison of the articulatory patterns of the study group with those of age peers,as reported in earlier studies, showed that the consonant phonemes characterized in our children by proliferation of allophones, pervasive allophones, or pervasive omission, were,largely, the consonants which the earlier studied identified as "correctly pronounced" only after the age of four years.

In this study, a significant proportion of the children's speech patterns - certain vowel and diphthong usages,the /r/ pattern, and the participial ending <u>in</u>, was similar to the speech of Southern whites as identified by the dialect geographers, and, at the same time, to Nonstandard Negro English, as identified in recent studies. Similarly, a significant part of the children's language patterns - the /ʒ/ and /ɵ/ phonemes, and certain omission patterns - was similar to characteristics identified by recent studies of Black English, and, at the same time, to characteristics of Standard English child-language as identified in the development studies.

Finally, it is of course true that the entire language configuration of these children constituted Black English. The separation into "childish characteristics" and "ethnic characteristics" was an arbitrary one made for the sake of discussion and analysis. While their language, in toto, constitutes four-year-old Black English, it shares an interesting proportion of its patterns with both traditional Southern speech, and Standard-English child language.

The phoneme-by-phoneme analysis does not communicate the degree of incomprehensibility of the speech of these children to the white, middle-class listener. Whether their speech was any more incomprehensible than that of a group of four-year-old speakers of Standard English, as heard by a member of an outgroup in terms of both race and socio-economic status, is not known. This writer would hypothesize that the incomprehensibility was due largely to the proliferation of consonant allophones and to pervasive omission patterns in combination. Both of these qualities should decrease with age. These are matters requiring further research.

Even a cursory glance through these pages should convince the reader that these children are not "language-deprived," as some educators would have us believe. Anyone observing them in interaction with their own in-groups, families and playmates, would recognize a vast amount of efficient communication, verbal and non-verbal. There is no doubt that the phonology of these children, even though matured by the year or two that will pass before they start school, will make their early school experience difficult, unless special understanding is extended, and special steps are taken. The present writer would

recommend the uncritical acceptance of the children's language in the early grades, attended by the gradual but insistent teaching of Standard English as the children move into the higher grades, not because Standard English is superior, but because it is the normative language of the larger society, and because American society has always penalized, through stigma, those groups which have been reluctant to relinguish the mother tongue. While American society has become somewhat self-consciously tolerant, and even approving, of certain cultural traits in ethnic groups, it has not shown any tendencies toward a greater acceptance of language deviations.

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APPENDIX

Worksheets - Individual Phoneme Descriptions

The Vowels

/i/ This phoneme contained only one allophone, the conventional Standard English high front [i], which was heard in initial, medial, and final, stressed and unstressed position: eat [it], eating ['i:ɪŋ] either ['iðə]; cream [kwim], green [grin], need [nid], sleep [slip], those [diz], needle ['nidə], police ['pəlis], teacher ['titʃə], teeny ['tini], TV ['tivi]; he [hi], me [mi], knee [ni], see [si], tea [ti], three [θri], we [wi].

/ɪ/ This phoneme was dominated by the conventional SE allophone [ɪ] which occurred in initial and medial position, in both stressed and unstressed syllables; it occurred in final position only when a final consonant was lost: ear [ɪ:ə], is [ɪz], it [ɪt]; big [bɪg], his [hɪz], hit [hɪt], lick [lɪk], sit [sɪt], still [stɪl], thing [θɪŋ], with [wɪθ], building ['bɪldɪn], Linda ['lɪndə], little ['lɪtə], bicycle ['baɪsɪkəl], tricycle ['traɪsɪkəl]; big [bɪ:], give [gɪ:], here [hɪ:], his [hɪ:], lid [lɪ:].

The allophone [ə] was heard occasionally in unstressed words such as is or it [əz, ə t]. Rare allophones included [æ] and [ʌ] which were heard once, in the words finger and whip, respectively [fæŋgəɹ, wʌp].

/ɛ/ The midfront conventional SE allophone [ɛ] dominated this phoneme. It occurred in initial and medial position, usually in stressed syllables, and in final position only when a final consonant was lost: air ['ɛ:ə], any ['ɛni], every ['ɛ:vi], elevator ['ɛlə'veɪtə]; self [sɛl], step [tɛp], then [dɛn], bread ['brɛ:ə], chair ['tʃɛ:ə], hair ['hɛ:ə], head ['hɛ:ə], hello [hɛ'lo], pencil ['pɛnsə], tennis ['tɛnɪs], there ['dɛ:ə]; fell [fɛ:].

The allophones [eɪ] and/or [ɪi] occurred in the speech of four of the five children, and, with the exception of one word, these allophones occurred always in monosyllabic words ending, in SE, in the voiced stop consonant: bed, bread, head, red [beɪ:, biɪ, breɪi, heɪ:əd, riɪ]. In the children's speech, the final consonant was usually lost. [eɪ] was heard in the speech of three of the children, [ɪi] in two, and [ɪ] in one. Both [eɪ] and [ɪi] were heard once in the word stairs ['tɪi, 'teɪ:]. The allophone [ɪ] was heard only once in the word penny ['pɪnɪ].

/æ/ The midfront vowel [æ] occurred in initial and medial position, usually in stressed syllables. It occurred in final position only when a final consonant was lost. This allophone characterized those so-called "ask" words that were heard: and [æn], at [æt], ambulance ['æmbju'læ:s]; back [bæk], bag [bæg], bath [bæf], grass [græ:s], hand [hæ:ən], hat [hæt, hæ t], lamb [læ:m], man [mæn] track [træk], daddy ['dædi], rabbit ['ræbət], wagon ['wægən]; man [mæ:], pan ['pæ:], that [ðæ:]. In unstressed syllables, especially in the word and, schwa [ə] was a frequent allophone. The allophone [eɪ] was heard only in the word can't [keɪnt].

/a/ The low back vowel [a] occurred in initial, medial and final position, usually in stressed syllables. A preponderance of the occurrences were in medial position. The schwa [ə] was an infrequent allophone in certain unstressed words, especially what, what's: are [a:] ; block [bwak], clock [klak], got [gat], knock [nak], Mark [ma:k], not [nat], rob [rab], top [tap], bottle [ba:əl], Charley ['tʃa:li], doctor [daktə], hottest ['hatəs], mama ['mamə], hospital ['ha:spɪtal] ; what, whats [wə; wa:s, wɪt].

/ɔ/ The midback rounded vowel [ɔ] was heard usually in medial position and in stressed syllables. It was only infrequently heard in initial and final position. Only [ɔ] was heard in the words water and washing which in some dialects are heard with the phone [a] : all [ɔl], on [ɔn] ; crawl [kwɔl], gone [gɔn], soft [sɔf], talk [tɔk], coffee ['kɔfi], horsy ['hɔ:si], walking ['wɔkɪn], water ['wɔtə], washing ['wɔʃɪn] ; fall [fɔ:l], saw [sɔ], draw [drɔ].

The tendency to raise and dipthongize this phone so as to produce the allophone [ou] was noted occasionally, either preceding a lost [r], or preceding the stop consonant [g]: dog [dɔg, doug], fork [fouk], four [fouə], horse [houəs].

The central vowel phones [ə,ʌ] were rare allophones, each heard once: Cornell [kɔ:nɛl], fork [fʌk].

/ʊ/ The highback rounded vowel occurred only in medial position. It included [ʌ] as a rare allophone in the word woman: book [bʊk], look [lʊk], pull [pʊl], put [pʊt], took [tʊk], would [wʊd], your [jʊə], cookie ['kʊki], pushing ['pʊʃɪn], woman ['wʌmən].

/u/ The extreme high back rounded vowel [u] occurred in medial and final position. [ə] was an infrequent allophone, heard in the word too: boot [but], room [rum], spoon [pun], tooth [tuθ], Koolaid ['kuleɪd], Snoopy ['snupi]; blue [blu], do [du], shoe [ʃu], too [tu, tə], food [fu:d] caboose ['p'u:s]

/ə/ The central vowel phoneme had two common allophones, as in SE, the unstressed [ə] and the stressed [ʌ]. The unstressed allophone [ə] occurred in initial, medial, and final position, the stressed allophone [ʌ] occurred only in medial position: a [ə], of [əv], up [əp], away [ə'weɪ], umbrella [ʌ:'bwalə]; some [səm], wants [wa:s], was [wəz], airplane ['ɛ:əplein], the [ðə, də], Linda ['lɪndə], mama ['mamə], pencil ['pɛnsə]; lamp [bʌmp], cup [kʌp], suck [sʌk], thumb [θʌm].

The allophones [ɔ, ɛ, æ, ɛə] were infrequent in the children's speech. [ɛə] was heard only in the word mother where it alternated with the conventional allophone [mɔðə, 'mʌðəə], and [ɛə] was heard in the words just and brushing, where it alternated with the conventional allophone [dʒɛs, dʒʌs], and [bɛ:, brʌʃ]. [æ] was a rare allophone heard only in the word ambulance ['æmbju 'læ:s]; [ou] was heard only in the word police ['pou'lis]

/ɜ/ The stressed central vowel which precedes /r/, whether articulated or lost, was heard in medial position, and in final position when final r was omitted: bird [bɜ:] , girl [gəl, gɜ:] , nurse [nɜ:] , dirty ['dɜrti] turtle ['tɜrndəl,'tɜ:də,'tərd], birthday [bɜ:fde:] ; her [hɜ:].

The high rounded back vowel [ʊ] was an allophone in the speech of two of the children. In one child, it was heard only once,in the word birdie, where it alternated with the conventional allophone ['bɜ:di,'budi] ; in the second child, it was a common allophone before lost r: turn [tʊ:n] , her [hʊə], your [jʊə] , turtle ['tʊ:tə̯l], paper ['p'e:pʊ] .

[ə] was almost universally used by these children in er word endings where the r was universally lost: finger ['fɪŋgə] mother ['mʌvə] , father ['favə] , teacher ['titʃə] . [ɛ] was a rare allophone, used only by one child, and heard only in the word girl where it alternated with the conventional phone : [gɜ:, gəl] .

The Vowels - Summarized

All the vowels occurred in conventional usage. The extreme high front /i/ contained only the conventional SE allophone [i] . The phonemes /ɪ/, /ʊ/ and /u/ were marked by rare aberrant allophones, usually a central vowel. The phoneme /ɛ/, which included [e, e̞ , ɪ] , was characterized by the presence of the southern [e] allophone which occurred in monosyllabic words, in which it preceded a final stop consonant, either articulated or lost, and by the less frequent childish [i] in the same environment. [ɪ] was heard only once as an allophone of this phoneme. The phoneme /æ/ was dominated by the conventional SE allophone [æ] , with the central vowel occurring in the unstressed and, and the southern allophone [ɛə] occurring only in the word can't. The phoneme /a/ included the allophone [ɑ] as dominant, and a very infrequent central vowel [ə] allophone in unstressed position in some words. The phoneme /ɔ/ was dominated by the conventional SE allophone [o] , but was characterized by the tendency to raise and diphthongize, producing the southern allophone [oʊ] preceding lost r and the stop consonant g in monosyllabic words. The central vowel phoneme/ə/ had two common allophones, as in SE, the unstressed [ə] and the stressed [ʌ] ; in addition, it included the rare [ɔ, ɛ, æ, ɑ], each of which was heard infrequently, once or twice at most. (See previous discussion) The stressed central vowel phoneme /ɜ/, which precedes r whether articulated or lost, was for the most part conventional, with two differentiating patterns: the childish allophone [ʊ] ,used commonly by one child, and the southern substitution of [ə] for the unstressed er ending, which was universal among these children.

The Diphthongs

/aɪ/ This phoneme included the allophones [aɪ, ɑɪ, ɑ, ə, æ] with [aɪ] being in most frequent usage. The phoneme occurred in initial, medial, and final position.

[aɪ] was the dominant allophone, heard most frequently in the speech of all the children: I [aɪ], ice [aɪs], Iris ['aɪwɪs]; bike [baɪk], bite [baɪt], dime [daɪm], kind [kaɪn], knife [naɪf], light [laɪt], like [laɪk], right [raɪt], time [taɪm], write [raɪt], flying ['flaɪɪŋ], trying ['traɪɪŋ], bicycle ['baɪsɪkə], tricycle ['traɪsɪkəl]; my [maɪ], sky [kaɪ], like [laɪ], side [saɪ].

[ɑɪ] was a common allophone; it occurred in the speech of all five children. In three of them, the allophone was rare, heard only in a few words where it sometimes alternated with the conventional [aɪ]; in two of the children, the allophone was common occurring in about half the words in which the phoneme appeared. This allophone tended to appear in the following environments: before the sonorant n, whether articulated or lost: iron [ɑ̃ɪn], mine [mɑɪn], tying [tɑɪŋ] wine [wɑ̃ɪn]; before the fricatives s and v, whether articulated or lost: five [fɑɪ], drive [drɑɪ], bicycle ['baɪsɪkəl, baɪθ], ice [ɑɪ], before the stop consonant d, whether articulated or lost: tied [tɑɪd], side [sɑɪ]; and in other miscellaneous positions: I [ɑɪ], tie [tɑɪ] myself [mɑɪ'sɛl], sky [skɑɪ].

[ə] and [æ] were rare allophones, each heard only once in the words my [mə] and wine [wæ̃ɪ], where they alternated with other allophones.

/aʊ/ This phoneme included the allophones [ɑ̃ʊ, æʊ, ɑ]. The conventional allophone [aʊ] dominated in the speech of four of the five children, but in three of the four, [æʊ] was a common allophone, occurring in about half the words in which the phoneme appeared. In three of the children, both [aʊ] and [æʊ] appeared in the same words, down, around, how. All five children consistently pronounced the word cow with the southern allophone, [ɑ] occurred only in flower [flɑbə].

The phoneme appeared in initial, medial, and final position: out [aʊt, ɑʊt], Brown [bɹaʊn, bɑʊn, bɹæʊn], down [daʊn, dæʊn], found [faʊn], flower [flæʊwə], house [haʊs], loud [laʊd], mouth [maʊf], around [əɹaʊn, əɹæʊn]; cow [kæʊ], how [haʊ, hæʊ], now [naʊ].

/ɔɪ/ This phoneme, which occurred infrequently in the children's speech, included the allophones [ɔɪ] and [ɑɪ]. It occurred in medial and final position. [ɑɪ] was rare, heard only once: noise [nɔɪz], toys [tɔɪz]; boy [bɔɪ], toy [tɔɪ], toilet [tɑ̃ɪlət].

/ju/ This phoneme was rare in the children's speech. It was heard usually in the word you, where it included the allophone [jə] in unstressed position. It was heard in medial position in the words ambulance, [æm'bju'lɑ̃ɪs] and January [t'æ nju'ɛɹɪ].

/o/ This phoneme included only the diphthongized allophone. It occurred in initial, medial, and final positions: old [oul], okay [ouke], open ['oupən], over ['ouvə]; boat [bout], coat [kout], cold [koul], comb [koum], cone [koun], don't [doun], nose [nouz], soda ['souɾə], smoke [smouk], those [douz]; go [gou], know [nou], no [nou], Esso ['ɛsou], hello [hə'lou], yellow ['jɛlou], piano [pi'ænou].

/e/ This phoneme included the allophones [eɪ, e, and ɑ] . Only the diphthong [eɪ] was in common usage; it was heard in initial, medial, and final position: ain't [eɪnt], ate [eɪt], eight [eɪt]; cake [keɪk], came ['keɪm], make [meɪk], plane [pweɪn], train [tweɪn], baby ['beɪbi], Kooleid ['kuleɪd], paper ['peɪpə], skating ['skeɪtɪn], taking ['teɪkɪn], elevator ['ɛləveɪtə]; day [deɪ], hey [heɪ], lay [leɪ], say [seɪ], away [ə'weɪ], okay [oukeɪ] .

The undiphthongized allophone was heard in the speech of one child only: lady [leːdi], baby [beːbi]. [ɑ] was heard only once in the word okay [toɑ].

Diphthongs, summarized. The phonemes /ɔɪ, ju, o, e/ were highly conventional in the speech of these children, including only rare aberrant allophones. The phonemes /aɪ/ and /au/ were distinctive in that they included the southern allophones /ɑɪ / and /æʊ/, respectively. The conventional allophones dominated, but the southern allophones were noticeably present; [æʊ] was more pervasive than [ɑɪ].

The Consonants

/p/ The Stops. The voiceless, bi-labial stop /p/ had the following allophones: [pʻ] , a moderately aspirated phone heard in initial position in stressed syllables: put [pʻʊt], spoon [pʻun], piano [pʻiˈæno], police [pʻoʊlis]; [p] , an unaspirated or only slightly aspirated phone heard in ambisyllabic position: open [ˈoupən], paper [ˈpʻeɪpə], peoples [ˈpʻipəz], puppy [ˈpʻʌpi], something [ˈsʌpəŋ]; [p*], an unreleased allophone which occurred in final position before a pause where it alternated with [p] , or was sometimes lost: cup [kʌp*], nap [næpʻ*], step [tɛpʻ*], up [ʌp*]; [b] , the voiced bi-labial stop, which was used extensively by one child: spaghetti [baˈgɛti], sleeping [ˈswibɪŋ], Snoopy [ˈswubi], tap [tæb], bump [bʌmb]. [b] was a rare allophone for the other children.

/b/ The voiced bi-labial stop /b/ included the conventional SE allophone [b] and the rare allophones [g] and [p]. [b] was heard in initial and medial position and in the consonant clusters bl and br: back [bæk], bag [bæg], ball [bɔːl], bath [bæθ], book [bʊk], boy [bɔɪ], baby [ˈbeɪbi], birdie [ˈbʊdi]; marbles [ˈmɑrbəz], numbers [ˈnʌmbəz], rabbit [ˈræbət], table [ˈteɪbə]; black [blæk], block [blɑk], blue [blu], breakfast [ˈbwɛkfəs], brother [ˈbwʌvɚ], Brown [baʊn], brushing [ˈbwʌʃɪŋ], ; caboose [pʻuˈ]; baby [ˈbeɪgi].

/t/ The voiceless alveolar stop /t/ had the following allophones: [tʻ, t, t*, t, ʔ , tʃ , k, p, s]. The last four were rare, heard only in a few words. Omission of this phone was frequent in final position whether singly or in consonant clusters, and occasional in medial position.

The allophone [tʻ] , a moderately aspirated phone, was heard most frequently. It occurred initially in stressed syllables preceding a vowel. It was also heard in final position before a pause, but this occurred when the child was giving one-word picture identifications or one-word emphatic answers, rather than in ordinary conversations: take [tʻeɪk], talk [tʻɔk], teacher [ˈtʻitʃə] , teeny [ˈtʻini], took [tʻʊk], tooth [tʻuθ] , toys [tʻɔɪz], tying [ˈtʻɑɪɪŋ]; boat [boʊtʻ], coat [koʊtʻ], light [lɑɪtʻ], that [dætʻ].

The palatalized [tʃ] was heard as an allophone of /t/ not as linking between words as it sometimes occurs in SE, e.g., meet you [ˈmiːtʃu], and in some dialects, e.g., right here [rɑɪˈtʃɪə], but in initial position in stressed syllables where [tʻ] was the common allophone (see above): teeth [tʃiːθ].

[t̚], an unaspirated or only weakly aspirated phone, alternated with [t*], the unreleased allophone, and with omission in final position before a pause. Certain common words were heard with all three endings: got [gɑt, gɑt*, gɑː], out [aʊt, aʊt*, aʊː], put [pʊt, pʊt*, pʊː], that [dæt, dæt*, dæː].

Both the voiced t[t] and the glottal stop[ʔ] were heard between a stressed an unstressed vowel, with about equal frequency. Omission also occurred in this position, especially in participals: bottle[ˈbaṭə, ˈbaʔəl, baːl], eating [ˈiːtn], getting [gɛʔən, ˈgɛɪn], hottest [ˈhaṭəs], little[lɪṭə, lɪʔəl], putting [ˈpʊɪn], sitting [sɪɪn], thirsty [θɜːṭi]; hospital [ˈhaːbɪʔəl, ˈhɑsbəl, ˈhasbɪṭəl]

[k, p, s] were rare allophones heard either once or twice in the children's speech: right [raɪk], tree [pri, sri], get [dɛs].

Omission of this phoneme was highly characteristic of these children's speech. In final position, omission alternated with [tʳ, t, and tʲ]; omission was more frequent than any of the allophones. In intervocallic position where [t] and [ʔ] were usual allophones, as noted above, two of the children consistently omitted the phoneme completely. In consonant clusters, the t was rarely articulated; the exception to this rule was the word ain't, which was heard frequently with the nt articulated, and the word can't in its rare pronunciation [keɪnt]. Omissions were noted in the following words: boat [boʊː], get[gɛː], skate [keɪː] what [wɑː], write [raɪː]; (ft) soft [sɔf]; (nt) can't [tæː], don't [doʊn], want [wɑ̃ː]; (st) just [dʒɛs], last [læs]; (xt) next [nɛk]; (ts) pants[pæ̃ːs], puts [pʊːs], that's [jæs], what's [wɑːs].

/d/ The voiced alveolar stop /d/ contained, for all purposes, only the conventional SE allophone [d]; the glottal stop [ʔ] was the only allophone otherwise heard, and it was heard only once. [d] was heard in initial, medial and final position. This phoneme was greatly weakened by omission which occurred with great frequency in both medial and final position, both singly and in consonant clusters:

Dime [daɪm], dog [dɔg], down [daʊn], duck[dʌk], dishes [ˈdɪʃəz], doctor [ˈdɑktə], drink [drɪŋk]; Linda [ˈlɪndə], middle [ˈmɪdə], needle [ˈniʔə], turtle [ˈtɜːdə], everybody [ˈɛvɪˈbɑdi]; need [nid], tied [taɪd], blasted [ˈblæstəd], Koolaid [ˈkulɛɪd].

(ld) building [ˈbɪːlŋ], children[ˈtʃɪːən], holding [ˈhoulɪn]; (nd) candy [ˈkæːnɪ], standing [ˈstænɪn].

bed [beɪː, biː], did [dɪː], food [fuː], head [heɪːə], lid[lɪːɪ], loud [leɪːʊ], read [wɪː], side [saɪː]; would [wʊː]; (ld) cold [koʊl] old [coʊɪ]; (nd) and [æn], found [fʊn], hand [hæn, hæn, hæːn], kind [kaɪn], around [əraʊn], second [ˈsɛkə]; (rd) bird [bɜː, bʊd].

/k/ The voiceless velar stop /k/ had the following allophones: [kʰ, k, k*, tᶜ, tʃ].

The moderately aspirated allophone [kʰ] occurred initially in stressed syllables. It was also heard in final position when the child was uttering one-word picture identifications or emphatic answers; it was not heard in final position in ordinary conversation: came [kʰeɪm], car [kʰɑ:], 'cause [kʰʌz], coat [kʰout], comb [kʰoum], come [kʰoun], cow [kʰæʊ], cut [kʰʌt], key [kʰi:], coffee [ˈkʰɔfi], cookie [ˈkʰʊki], Cornell [kʰanɛl], Koolaid [ˈkʰulɛɪd]; book [bʊkʰ] pick [pɪkʰ], talk [tɔkʰ].

The unaspirated or slightly aspirated allophone [k] occurred in the combination [skV], in ambisyllabic position, and in final position where it alternated with [k*] and with occasional omission: skate [skeɪ:], sky [skaɪ:]; chicken [ˈtʃɪkən], ducky [dʌki], looking [ˈlʊkɪn], nickle [nɪkə], okay [ouke ɪ], sucking [ˈsʌkɪn], taking [ˈteɪkɪn], walking [ˈwɔkɪn]; book [bʊk], look [lʊk], make [meɪk], milk [mɪlk], drink [drɪŋk], sink [sɪŋk].

The unreleased allophone [k*] occurred in final position preceding an initial consonant in the following syllable, and in final position where it alternated with [kʰ, k] and with occasional omissions: doctor [dɑk*tə]; block [bwak*], book [buk*], fork [fouk*], like [laɪk*], look [lʊk*], make [meɪk*], smoke [smouk*], take [teɪk*], track [trak*], wake [weɪk*].

The voiceless alveolar stop [tʰ] dominated the usage of one child in initial position in stressed syllables where the other four children regularly used [kʰ]. can't [tʰæ:], comb [tʰoum], cow [tʰæʊ], cream [tʰim], kitty [ˈtʰɪti], okay [outʰeɪ]. One usage of this allophone was heard in the speech of one other child: cream [krim, tʰrim].

The voiceless alveolopalatal affricate /tʃ/ was a rare usage heard only in the word key [tʃi], and as a replacement for the consonant clusters kl and sk: (kl) clock [tʃak], (sk) skate [tʃeɪt].

Omission of this phoneme occurred in final position both singly and in consonant clusters. Omission of the single phone in final position alternated with the allophones [kʰ, k, k*] as noted above: book [bʊ:], like [laɪ:], look [lʊ:] suck [sʌ:]; (ks) blocks [blɑ:] cooks [kʊ:s], (rk) Mark [mɑ:ə].

/g/ The voiced velar stop /g/ included the allophones: [g, d, k, t, dʒ] [g] was heard in initial, medial, and final position: got [gɛ:], girl [gɜ:], give [gi:], go [gou], goes [gouz], got [gɑt], guitar [gwə'tɑr]; doggy [dɔgi], spaghetti [bə'gɛti], wagon [wægə], wiggle ['wigəl]; bag [bæg], big [big], dog [dɔg, dɔəg], flag [fwæg].

[d] was used with some regularity by two of the children; in one child, it occurred more frequently than the conventional SE [g]: get [dɛs], girl [dɜ:l], go [dou], gone [dɔn], got [dɑt], guns [dʌ̂:] going ['douiŋ].

[k, t, dʒ] were rare allophones: [k] was used once by two children in the words Gregory ['dzɛkɜri] and wiggle ['wikəl]. [t] was heard only once in the word wagon ['wætə]. [dʒ] was heard once in the word girl [dʒɜ:l].

The consonant clusters gl and gr were almost universally changed from SE articulation; the pattern of change varied among the children: (gl) glass [gwæs, dzæ:] (gr) grass [grɑ:s], great [reit], green [dwin], Gregory ['dzɛkɜri].

Omission of final [g] alternated with the conventional allophone: bag [bæg, bæ:], big [big, bi:], dog [dɔg, dɔəg, dɔ:].

Stop Consonants, Summarized. The stop consonants, as used by these children, were dominated by the conventional SE allophones. Nevertheless, each of these phonemes contained non-SE allophones, some pervasive, others minimal, but taken together constituting a distinctively non-SE pattern.

The bi-labial stops /p/ and /b/ were most conventional: /p/ included the aberrant allophone [b], used extensively by one child. /b/ included the aberrant allophones [p] and [g], in rare usage. The voiceless alveolar /t/ included the usual SE allophones, but also the unconventional [ʔ, tʃ, k, p, s], all in rare usage. The voiced alveolar /d/ included only one unconventional allophone, the glottal stop, in rare usage. Both /t/ and /d/ were marked by extensive omission, both singly and in consonant clusters, especially in final position, but also, to a lesser extent, in medial position. The voiceless velar stop /k/ included the conventional allophones plus [t] used extensively by one child, and [tʃ], in rare usage. The voiced velar stop /g/ included the unconventional allophone [d], used commonly by two children, and the allophones [k, t, dʒ], in rare usage.

In summary, the stop consonants were characterized by the presence of numerous unconventional allophones. Some were used extensively by one or two children, e.g., [b] in /p/, [t] in /k/, [d] in /g/. Some were in rare usage, heard only once or twice, e.g., [p] and [g] in /b/, [ʔ, tʃ, k, p, s] in /t/, [k, t, dʒ] in /g/. Those which were used extensively by one or two children were, in two of the three instances, usages which we ordinarily associate with "baby-talk": [t] in /k/ as in can't [tʻæ̃ːnt], [d] in /g/ as in girl [dɜːl]. Technically, these patterns can be described as the substitution of the voiceless alveolar stop t for the voiceless velar stop k, and the substitution of the voiced alveolar stop d for the voiced velar stop g. --- It is probable that the scattered, non-repetitive, unconventional allophones are also characteristic of immature speech, less recognized, but in all likelihood even more contributory to incomprehensibility of speech in these four-year olds.

A second pattern which ran through all the stop consonants was omission in final position, both singly and in consonant clusters, and to a lesser extent, in medial position. While omission characterized all the stops to some degree, it was most markedly characteristic of the alveolar stops /t/ and /d/.

A third pattern characterizing the stop consonants concerns their use in consonant clusters. In medial or final position, the consonant cluster containing a stop consonant was usually marked by omission of either phone. In initial position, substitute combinations were more common, e.g., [tʃ] for [tr, kl, and sk] in the words truck [tʃʌk], clock [tʃɑk], skate [tʃeɪt]; [gw and dz] for [gl] in the word glass [gwæs, dzæːs]; [dw] and [dz] for [gr] in the words green [dwin], and Gregory [ˈdzɛkɜri].

Two of the dominant patterns characterizing the stop consonants appear to be clearly associated with immature speech: the proliferation of allophones, and the substitutions of other phonetic combinations for initial consonant clusters. The third pattern, that of omission in final and medial position, may be a correlate of either immature speech or black English, or some combination of both.

/f/ The fricatives. The voiceless, labio-dental continuant /f/ was heard in initial, medial, and final position, and in consonant clusters. This phoneme included the rare allophone [p] which was heard in the speech of one child in two words, fire and coffee.

fell [fɛ:]
fire ['pʻa:ə]
fish [fiʃ]
five [fai:]
food [fu:]
fork [fouk]
four [fou:ə]
father ['fɑ:də]
finger ['fiŋgə]

breakfast ['bwɛkfəs]
coffee ['kɔfi, 'kɔpi]
laughing ['læfiŋ]
telephone ['tɛ:ə'foun]

knife [naif]
off [ɔf]

(lf) self [sɛl]
(ft) soft [sɔf]

(fl) flower [flæuwə]

/v/ The voiced labio-dental continuant /v/ was heard in medial and in final position; in final position articulation of the phone was rare. [k] and [w] were rare allophones, each heard once in the words seven and every. Omission of the phone was common in final position.

every ['ɛ:vi, 'ɛwi]
over ['ouvə]
seven ['sɛvə̃, 'tʃɛki]
TV ['tivi]
heavier ['hɛviə]
elevator ['ɛ:lə'veitə̤]

of [əv]
drive [draiʉ]
five [fai:]
give [gi:]
have [hæ:]

(vz) drives [drai:z]

/ð/ The voiced dental fricative phoneme /ð/ included the allophones [d, ð, v, j]. The phoneme occurred in initial and medial position. In initial position, the voiced alveolar stop [d] dominated the speech of all the children; [ð] and [j] were rare; the voiced labio-dental continuant [v] was not heard in initial position. In medial position, between a stressed and unstressed vowel, three allophones occurred. Two of the children used [ð] and [d]; two used [ð] and [v]; the fifth child used [v] only.

that [dæt, ðæt, jæt]
the [də]
then [dɛn, ðɛn]
there [dɛ:ə, ðɛ:ə]
these [diz]
those [douz]
them [dɛm]
they [de:]
this [dis]

brother ['bwʌvə]
either ['i:ðə]
father ['fɑ:və]
mother ['mʌðə, 'mʌdə, 'mʌvə]
other ['ʌdə]
another [ə'nʌdə]
together [tə'gɛvə]

/θ/ The voiceless dental fricative phoneme /θ/ included the following allophones, listed in descending order of frequency heard: [f, θ, t, tʃ, p]. This phoneme had two outstanding characteristics: (1) domination by the unconventional allophone [f]; (2) spread of allophones, not only within the group phoneme, but also within the individual phoneme of each child. Omission was infrequent.

thing [θɪŋ, tɪŋ]
three [θri, fwi, fi, tri, ti]
thumb [fʌm] [θʌm]
thirsty ['tʃɜ:ti]
birthday ['bɜ:fde!]
nothing ['nʌfɪn]
something ['sʌmpɪn]
bath [bæθ, bæf]
both [bouf]
mouth [maʊθ, maʊf]
teeth [tiθ, tif, ti:]
tooth [tuθ, tuf]
with [wɪθ, wɪt]

INDIVIDUAL ANALYSIS OF PHONEME /θ/

Allophone	Child 1	2	3	4	5
[f]	5 of 8 words	1 of 2 words	2 of 5 words	____	5 of 11 words
[θ]	2 of 8 words	____	____	4 of 4[a] words	3 of 11 words
[t]	1 of 8 words	____	1 of 5 words	3 of 4[a] words	2 of 11 words
[tʃ]	____	____	1 of 5 words	____	____
[p]	____	____	____	____	1 of 11 words
Omission	____	1 of 2 words	1 of 5 words	____	____

[a]This child used both allophones [θ] and [t] in three of the four words.

/s/ The voiceless alveolar fricative /s/ occurred in initial, medial, and final position, and in consonant clusters. It included the allophones [s, θ, ʃ, tʃ]; the last two were in rare usage. In initial position, three of the children used [s] and [θ]; in two of these three, the [θ] dominated. The fourth child included [s, ʃ, tʃ], with [s] dominating. The fifth child used [s] only in this position. In medial position, which occurred infrequently, the [s] was usually articulated. In final position, only the allophone [s] occurred in the speech of four of the children, but omission was frequent. The fifth child used [s, ʃ, θ], as well as omission.

say [seɪ, θeɪ]
see [si]
sink [sɪʃk]
soda [θoudə]
soft [sɔf]
some [sʌm]
suck [sʌk, θʌk]
scissors [ˈsɪzəz, ˈθɪθəz, ˈʃɪʒəz]
sitting [ˈsɪtɪn]

Esso [ɛsou]
pencil [ˈpɛnsəl, ˈpɛːθəl]
muscle [ˈmʌsəl]
bicycle [ˈbaɪˈsɪkəl]
tricycle [ˈtraɪˈsɪkəl]

glass [glæːs]
grass [græːs, græs]
house [haus, hauθ, hauːs]
ice [aɪs, aɪː]
juice [dʒus, dʒuː]
this [dɪs, dɪʃ, dɪː]
pieces [piːs]
police [ˈpouˈlis]
tennis [ˈtɛnɪs]

Consonant clusters containing /s/ were frequently weakened by omission, and rarely by the substitution of another allophone. In initial position, in consonant clusters, the [s] was lost more often than it was articulated. In medial position, the pattern was varied, but instances of /s/ in consonant clusters in medial position were infrequent, so it is impossible to see a firm pattern. In final position, either the [s] or the other element of the cluster tended to be lost, and these two phenomena seemed to occur with about equal frequency.

(sk) skate [kʰeɪ, ʃeɪt, skeɪt]
sky [kʰaɪ, skaɪ]
(sl) sleep [slip, ɛwiːp, ɛipʲ]
(sm) smoke [smouk, mouk]
(sn) Snoopy [snupi, ˈnupi, ˈswubi]
(sp) spaghetti [baˈgɛti]
spoon [pʰun]
(st) stairs [tʰi, tʰeɪː]
standing [ˈstænən]
step [tʰɛpˀ]
stick [tʰɪk]
still [stɪl]
(str) straight [reɪt]

(st) blasted [blæstəd]
(sp) hospital [ˈhaːbɪˀəl, ˈhasbəl, ˈhɑsbɪtəl]

(ks) blocks [bwak]
six [sɪk]
(ps) steps [tɛp]
(rs) nurse [nɜːs, nɜːːs]
(ts) pants [pæːs]
puts [puːs]

In summary, the /s/ phoneme was weakened by the inclusion of [θ] as an allophone in initial position, by frequent omission in final position, and by frequent omission in consonant clusters in both initial and final position.

/z/ The voiced alveolar fricative /z/ occurred usually in final position; it was rare in medial position, and not heard in initial. It included the allophones [z, θ, ʒ ɪ] . In medial position, this phoneme was heard only in the word scissors, in which the children used three allophones: [sɪzəz, ˈθɪθə, ˈʃɪʒəɹ] . In final position, three of the children used [z] only, but also omitted the phone occasionally. The other two children used the allophones [z] and [θ], and also omitted the phone occasionally. In final position, [z] dominated the speech of all the children: boys [bɔɪz], falls [fɔːz], goes [goʊz], his [hɪz, hɪθ , hɪː], is [ɪz], knees [niθ] , nose [nouz, nouɪ] shoes [ʃuz, ʃuː], stairs [tʰeː tʰiː], these [diz], things [t'ɪŋz, t'ɪŋ] , toys [tɔɪz], dishes [dɪʃəz], marbles [maːbəz].

/ʃ/ The voiceless palato-alveolar fricative /ʃ/ occurred in initial, medial and final position. It included the allophones [ʃ] and [s] . Four of the five children used both allophones; the fifth child used [s] only. Both allophones occurred in initial and final positions; [ʃ] only was heard in medial position: she [ʃiɹ], ship [sɪp], shoes [ʃuz, suɪ], show [ʃou ʃ] brushing [bwʌʃɪŋ], dishes [dɪʃəz], pushing [puʃɪŋ], station [steɪʃən], washing [wɔʃɪŋ]; brush [bwʌʃ] , bush [buʃ, bus], fish [fɪʃ] , wash [wɔʃ].

/ʒ/ The voiced palato-alveolar fricative /ʒ/ phoneme was not heard in the speech of any of the children.

/h/ The glottal fricative /h/ was heard in initial position primarily. It was heard in medial position only in the affirmative and negative responses: hair [hɛːəɹ], hand [hæən], hat [hæt], he [hiɹ], head [heːəl] hallo [hɛˈloʊ], her [hɜːɹ], here [hɪəɹ], [dɪɹ], hey [heɪɹ], his [hɪz], horse [hoʊs], horsy [hɔrsɪ], house [haus], how [hau, hæʊ], holding [houlɪn], hospital [hosbɪtəl]; "uh huh" [əˈhʌ] , "huh uh" [ˈhʌ əɹ] . [d] was a rare allophone, heard only in the word here, as noted above, and heard only once. In conventional speech, initial [h] is often dropped in unstressed pronouns and auxiliary verbs, and this was true also with these children. This phenomenon was noted in such words as he, her, here, his, have.

Fricatives, Summarized. Like the stop consonants, the fricatives were, for the most part, dominated by the conventional allophones, with only a few exceptions. The exceptions however were of marked importance. The allophone [d͡ʒ] dominated the phoneme /ʒ/ in initial position, and the allophone [f] dominated the phoneme /θ/ in medial and final position. These exceptions, in addition to the presence of scattered, non-repetitive allophones in minimal usage and a few non-SE allophones in pervasive usage, added up to a distinctively non-SE pattern.

The inclusion of many unconventional allophones was noted in the following phonemes: [p] in /f/; [k,w] in /v/; [d,v,j] in /ð/; [f, t, ʧ, p] in /θ/; [θ, ʃ, ʧ] in /s/; [θ, ʒ] in /z/; [s] in /ʃ/.

The inclusion of some allophones in pervasive usage included: [d͡ʒ] in /ʒ/; [f] in /θ/; [θ] in /s/; [s] in /ʃ/. [d͡ʒ] as an allophone of /ʒ/ dominated that phoneme in initial position. [f] as an allophone of /θ/ was dominant, but the dominance was most marked in medial and final position. In these four phonemes which included a dominant or pervasive unconventional allophone, in three of the four instances, that allophone was also a fricative consonant, and both the phoneme and the allophone in question, voiceless. In the fourth instance, the voiced /ʒ/ included a dominant voiced allophone, in this case, the stop consonant [d͡ʒ]. From the point of view of articulation, it appears that pervasive allophones in the fricative phoneme category tended to be taken from the other fricative consonants, and to match the phoneme in the presence or absence of voicing.

Omission seemed to exist in a significant degree only in those phonemes which were not characterized by a proliferation of unconventional allophones. While omission did characterize the fricative consonants, in general, just as it did the stop consonants, it was marked in only a few: highly characteristic of the phoneme /s/, and moderately present in the phonemes /v/ /z/ and /h/.

Patterns characterizing fricative consonants can be divided into those which are clearly associated with immature speech, and those which may be a function of immature speech, black English, or some combination of both. Among the former can be included: (1) the proliferation of unconventional allophones; even those in rare usage signaled the immaturity of the speaker, witness such pronunciations as coffee [kɔpi], fire [paːə], seven [tʃɛki], thirsty [tʃəːti];

(2) [θ] as an allophone of /s/ in initial position, e.g., say [θeɪ];
(3) omission of /s/ in initial consonant clusters e.g., spoon [pun].

Some of the patterns characterizing the fricative consonants have been associated with stereotyped childish speech as well as stereotyped Negro speech. Such patterns included the pervasive [d͡ʒ] in /ʒ/ in initial position, in the so-called "these, those" words. Another is the inclusion of [f] in the phoneme /θ/, in both medial and final position. Omission as a phenomenon characterizing the phonemes /v,s,z/ may very well be a function of some combination of both immature speech and Black English. A further discussion of the relationship between these patterns and Black English is given elsewhere in this study.

/tʃ/ The Affricates. The voiceless alveolopalatal affricate /tʃ/ occurred in initial, medial, and final position. This phoneme was heard infrequently in the speech of these children. It included the allophones [tʃ, ʃ, tr]. Omission was rare. [tʃ] dominated the speech of all five children. Both [tʃ] and [ʃ] occurred in initial and medial position, with [tʃ] dominating: chair ['tʃɛ:ə], Charley ['tʃɑ:li, 'ʃarli], checker ['tʃɛ kə], chicken ['tʃ ɪ kɛn, 'ʃ ɪ kɔn], choo choo train ['tʃu,'tʃu,'treɪ: , 'tʃu 'tri 'treɪ:], kitchen ['kɪʃə n], teacher ['titʃə , tiʃə], watches ['wɑtʃə z], watch [vɑ: , wɑʃ].

The voiceless alveolopalatal affricate [tʃ] was distinctive in the speech of two of the children, not for its phonemic content, but rather because it functioned as an allophone for several other phonemes, and as a substitute for certain consonant clusters in initial position. For each of the phonemes for which it was an allophone, [tʃ] was rare; yet the cumulative effect was indeed noticeable: tooth [t(i:]; key [tʃi:] ; thirsty [tʃə:ti] ; seven [ʃɛ kɪ] ; clock [tʃɑ k] ; skate [tʃe:t] ; truck [tʃʌ k].

/dʒ/ The voiced alveolopalatal affricate /dʒ/ occurred in initial, medial, and final position. Occurrence of this phoneme was infrequent. It included the allophones [dʒ, ʒ , z, dz, t]. The phoneme was heard in the speech of four of the children. In three, both the conventional and unconventional allophones were heard; in the fourth, only the conventional: George [dʒ ɔ:dʒ] , jail [dʒe:l], January ['t'æn ju'ɛri], juice [dʒus, dʒu:, dzus, dzu:], jump [dʒʌmp, zʌmp], just [dʒɛs]; engine [ẽ:ʒə]

Affricates, Summarized. The conventional SE allophones dominated the alveolopalatal affricates. Like the stop consonants and the fricatives, however, the presence of aberrant allophones was extensive enough to be distinctive. In general, the unconventional allophones, more numerous for the voiced alveolopalatal /dʒ/ than for the unvoiced /tʃ/, were simplifications, that is, the usual unconventional allophone of /tʃ/ was [ʃ], and the usual unconventional allophones of /dʒ/ were [dz, z and ʒ].

The unconventional patterns characterizing the affricate phonemes appear to be characteristic of immature speech rather than black English.

/m/ The Sonorants. The voiced bi-labial nasal /m/ occurred in initial, medial, and final position. It included the allophones: [m,n,p], the last two in rare usage. Omission occurred in medial and final position, usually resulting from nasalization of the preceding vowel: make [meɪk], man [mæ̃ː], me [mi], mouth [maʊf], my [maɪ] middle ['mɪdə], morning ['mənɪn], mother ['mʌðə], (sm) smoke [smoʊk]; bump [bʌ̃ːb], combing ['koʊmə, 'koʊnə, 'koʊmən], mama [mɑmə], numbers ['nʌmbəz], tummy ['tʌ̃pi], woman [wʌmpn], animal [æ̃ːnəməl], somebody ['sʌːbʌdi]; came [keɪm], comb [koʊm], cream [kwim], dime [daĩːm] himself . some [sʌm, sə̃ː], thumb [θʌm], time [taĩːm].

/n/ The voiced alveolar nasal /n/ was heard in initial, medial, and final position. It included only the conventional allophone [n], but was characterized by a great deal of omission in medial and final position, both singly and in consonant clusters, usually resulting from nasalization of the preceding vowel. Loss through nasalization characterized the speech of all the children. In initial position, this phoneme was always conventional and always articulated: knee [ni], knife [naɪf], know [noʊ], need [nid], not [nɑː], numbers ['nʌmbəz]. In medial, intervocallic position, the conventional allophone was usually articulated: any ['ɛni], penny ['pɪni], animal ['æ nəməl], Annabelle ['ænəbɛl]. Medial in the word, but final in the syllable and preceding a consonant, this phoneme was usually lost through nasalization of the preceding vowel: engine ['ĩːʒə̃], Indian ['ĩːdi'jə̃] pencil [pɛ̃ːsə, pɛnsə, pɛ̃ːθə]. In final position, articulation and omission through nasalization seemed to occur in about equal proportions. These alternative usages occurred in the speech of all the children: can [kæ̃ː], cone [koʊ̃ː, koʊn], green [grĩn], man [mæ̃ː], mine [maĩːn], on [ɔn], one [wʌn], train [trẽĩː, treɪn], ran [ræ̃ː], spoon [spʊn], wine [waĩː, waĩːn], airplane ['ɛːəplẽĩː, 'ɛːəpleɪn], chicken [ʧɪ kə̃], eighteen ['eɪːtiːn], open [oup', oupən], wagon [wægə̃ː, wægən]; (nd) around [əraʊ̃ːn], second [sɛkə̃ːn], (ns) guns [gʌ̃ːz], (nt) don't [doʊ̃ːn] can't [kæ̃ːn], want [wə̃ːn], (nts) wants [wə̃ːs].

/ŋ/ The voiced velar nasal /ŋ/ was heard conventionally in medial and final position in such words as: drink [dwɪŋk, dzɪŋk], sink [θɪŋk], finger [fɪŋgə], thing [t'ɪŋ, θɪŋ], ring [wɪŋ].

In the participial suffix ing, [ɪŋ] was never heard. [ɪn] was the most frequent replacement; [ə n] was frequent; [i] and [ə] occurred, [i] being particularly characteristic of one child; omission occurred occasionally: brushing ['bɛ̃ː, 'bʌʃiːn], combing ['koʊmɪn, 'koʊmə̃], doing ['duɪn, 'duən], going ['goʊɪn], laughing ['læfɪn], looking ['lʊkɪn, 'dʊki], playing ['pleɪːɪn], putting ['pʊti, 'pʊt'], sitting ['sɪtɪn, 'sɪti], saying ['seɪːɪn], skating ['skeɪtɪn], standing ['stænɪn, 'stænən], sucking ['sʌkɪn, 'sʌki], taking ['teɪkɪn], talking ['tɔk'].

/l/ The voiced alveolar lateral /l/ occurred in initial, medial, and final position, and in consonant clusters. It included the allophones [l, j, d, w]. In initial position, [l] was dominant; [j], frequent, and [d], rare; no omission occurred. In initial consonant clusters, [l] dominated, [w] was frequent, and omission was occasional. In intervocallic position, [l] dominated, omission occurred only rarely, and [d] was rare. In final position, [l] and omission both occurred; omission was dominant in final position, both singly and in consonant clusters; other allophones did not occur.

lady ['leɪdi, 'jeɪdɨ]
lamb [læm]
laugh [læf]
light [laɪt]
like [laɪk, jaɪk]
little ['lɪt̬ə, 'jɪt̬ə]
look [luk, juk, duk]

(bl) black [blæk, bwæk]
block [blɑk, bɑk]
(fl) flag [flæg, fwæg, fæg]
(gl) glass [gwæs]
(kl) clock [kwɑk, ʧɑk]
(pl) plane [pleɪn, p'eɪn, pweɪn]
plate [pleɪt, pweɪt]
(sl) sleep [slip, swib, sip]

Charley ['ʧɑ:li]
color ['kʌlə]
hello [hə'lou, hɛ'dou]
Koolaid ['kuleɪd]
police [pə'li:s]
telephone ['tɛləfoun]
['tɛ:əfoun]
umbrella [ə:'brɛlə]

all [ɔl, ɔ:]
bowl [boul]
fall [fɑl, fɛ:]
Cornell [kə'nɛl]
nickle ['nɪkə]
table ['teɪbə]
wiggle ['wɪgəl]
bicycle ['baɪsɪkəl]
['baɪsɪkə]

(ld) cold [kol]
old [ol]
(lk) milk [mɪ:k, mɪək]
(lz) falls [fɔ:z]
marbles ['marbəz]
peoples ['pipəz]
(rl) girl [gɜ:, gɜ:l]

Sonorants, Summarized. The sonorants, like the stops, fricatives, and affricates, were dominated by the conventional allophones. In fact, unconventional allophones were less frequent in the sonorants: /m/ had rare [n] and [p]; /n/ had none; /ŋ/, in itself had none, but in the participial ending ing, included [n] in both [ɪn] and [ə n]. The phoneme /l/ had the distinctive unconventional allophones [j, w, d]. Omission was the outstanding characteristic of the sonorants. It was particularly marked in /n/ and /l/, in /n/ through nasalization of the preceding vowel.

Some of the patterns characterizing the sonorants fall easily into the category of immature speech: (1) the rare allophones [n] and [p] in /m/ and [d] in /l/; (2) the fairly frequent [j] in initial position in such words as like, look, lady; (3) [w] in /l/ in initial consonant clusters, e.g., flag [fwæg]; (4) omission in initial consonant clusters, e.g., sleep [sip]; [i] and [ə] replacing the participial ending ing.

The omission of /m/ and especially /n/ through nasalization of the preceding vowel may be a characteristic of southern or Negro speech. [ɪn] and [ə n] as replacements for the suffix ing are long-recognized Southernisms.

/j/ The Glides. The voiced palatal semivowel /j/ was heard in initial and medial position, although infrequent in the children's speech. It had no unconventional allophones: yeah [jɛə,'jɛjə], yes [jɛs,'jɛjəs], your ['jɔə, 'jʊə], yellow ['jɛloʊ]; crayon ['kweɪjə̃], Indian ['ɪndijə̃.]

/w/ The voiced labio-velar semi-vowel /w/ was heard in initial and medial position. It included the allophones [w, v, b], the last two in rare usage. It was frequently omitted in common, monosyllabic words such as one, was, what: one [wʌn, ən], was [wʌz, əz], watch [vɑ:], we [wi], what [wʌt, ɑt], where [wɛə], wheel [wiəl], with [wɪθ], would [wu:], wagon ['wægə̃, 'vægə̃], water ['wɔtə], wiggle ['wigəl]; flower ['flæwə, fwabə].

/r/ One of the patterns reflecting the immaturity of these speakers was that of inconsistent allophoning. This characteristic was marked in the /r/ phoneme. All the children used the conventional [r] on occasion, but more frequently, they used the childish [w], or omitted the phone completely. As was found to be true with other phonemes, the position in the word made an important difference in the choice of allophone.

In initial position, the allophone used most commonly by all the children was [w]. Three of the children who used [w] commonly in this position used [r] occasionally; the [w] clearly dominated in the speech of all the children: ran [ræ̃:, wæn], read [wi:, wid], red [wɛd], ring [wɪŋ], right [waɪt, raɪt], run [wʌn], rabbit ['ræbɪt], rocket ['wɑkətɪ].

In initial consonant clusters, the tendency to use the conventional [r], alternating with the unconventional [w] and with omission, was more apparent, clearly characterizing the speech of all the children. In this position, [r] was heard more frequently than any other allophone, but [w] was frequent; the allophone [z] was rare. Omission was occasional.

(br) bread [brɛ:ə]
brick [brɪk, bɪk]
bring [brɪŋ]
Brown [braʊn, baʊn, bwaʊn]
brush [bwʌʃ, brʌʃ, bɛ:]
brother ['bwʌvə]
breakfast ['bwɛkfəs]

(dr) drink [drɪŋk, dwɪŋk, dzɪŋk]
drives [draɪz]
draw [drɔ]

(gr) grass [græ̃s]
green ['grin, dwin]
Gregory ['dzɛkəri]

(kr) crawl [kwɔl]
crayon ['kweɪjə̃]
cream [krim, trim, tim]

(tr) train [trein, tweɪn]
tree [tri, twi, ti]
trying ['twaɪ:ɪn]
tricycle ['traɪ'sɪ kəl]

(θr) three [θri, fi, fwi, ti, tri]

(str) straight [reɪt]

In medial, intervocallic position, the phoneme /r/ was heard too infrequently to warrant more than a guess as to the frequency of the allophones. On the basis of the few examples heard, it was clear that the inconsistency pattern prevailed, with [r] and [w] occurring in about equal proportions. Omission appeared to be rare: around [ə'raʊn], Gregory ['dzɛkʂriɹ], January ['tænjuɛriɹ], Iris [aɪwɪs], Larry ['lɛwiɹ], stories ['stɔriz, 'stouwizɹ], very ['vɛri, 'vɛ:iɹ], wheelbarrow ['wil 'bɛrəʊ].

True consonant clusters in medial position were heard only rarely. In the word umbrella [ʌm'bwɛlə], the cluster br is medial in the word but initial in the syllable, and followed a pattern common to initial consonant clusters. In a few words, the phoneme /r/ occurred medially in the word following a consonant, either articulated or lost, but with the /r/ actually initiating and releasing the following syllable; in such instances the [r] was usually lost: every ['ɛ:wi, 'ɛ:viɹ], bathroom ['bæfum]. Where the /r/ phoneme occurred medially in the word, but in fact finally in the syllable, and preceding a consoant which initiated the following syllable, the /r/ was usually, but not always, lost: Charley ['tʃɑ:li, 'tʃɑrliɹ], Cornell [Kɔ'nɛɫ], corner ['kɔ:nə], marbles ['marbəzɹ], morning ['mɔ:nɪn], turtle [tɑ:ṭə], thirsty ['tʃɜrṭi]. In the medial consonant cluster [rθ], which occurred in the word birthday ['bɜ:fdeɪ], the /r/ was lost; in this last instance, the cluster is medial in the word, but final in the syllable.

In final position in monosyllabic words, the /r/ was almost universally lost, and usually replaced by [ə]. In this position the [r] was heard rarely: air ['ɛ:ə], are [ar], car [kɑ:], hair [hɛ:ə], her [hər, hɜ], more [mɔə, mɔr], pour [pɔ:], there [dɛ:ə], where [wɛ:ə], your [juə].

In final unstressed position in disyllabic words, the /r/ was universally lost: brother ['bwʌvəɹ], father ['fɑðəɹ], finger ['fɪŋ gəɹ], flower ['flæʊəɹ], mother ['mʌvəɹ], over ['oʊvəɹ], paper ['pe(ɪ)pəɹ], together [tə'gɛðəɹ], teacher ['tiʧəɹ], water ['wɔtəɹ].

In final consonant clusters, the /r/ was universally lost: (rd) bird [bɜ:], (rk) fork [fɔ:k, foʊk, fɔək], Mark [mɑ:kə], (rl) girl ['gɜ:, gɜ:lɹ], (rn) iron [ɑ:n], turn ['tɜ:n], (rs) horse [hɔəs, hoʊəs], nurse [nɜ:], (rz) scissors ['θɪ(θə)z], stairs ['ti:, te:ɪ], (rʤ) George [ʤɔ:ʤ].

The Glides, Summarized. Of the three glide consonants, only the /r/ was distinctive, but it was very much so. The dominant allophone [w] in initial position; the inconsistent usages in initial consonant clusters, in intervocallic position, and in medial "clusters," taken together comprised a highly distinctive /r/ pattern.

The patterns characterizing this greatly weakened and highly unstable phoneme are rather easily sortable into those which indicate immature speech, and those which are characteristically "southern," "Negro," or "Black English." Among the former are the allophone [w] in initial position, in initial consonant clusters, and in intervocallic position, and the overall inconsistency and instability of the allophone patterns in these positions. Among the latter are the loss of /r/ in final position in monosyllabic words, in final unstressed position in disyllabic words, and in final consonant clusters.